PRINTING EQUIPMENT ENGINEER

OCTOBER • 1934

A TECHNICAL PUBLICATION FOR MECHANICAL EXECUTIVES RESPONSIBLE FOR PRINTING PRODUCTION, EQUIPMENT AND SUPPLIES IN THE COMMERCIAL, MAGAZINE, PRIVATE PLANT AND DAILY NEWSPAPER FIELDS

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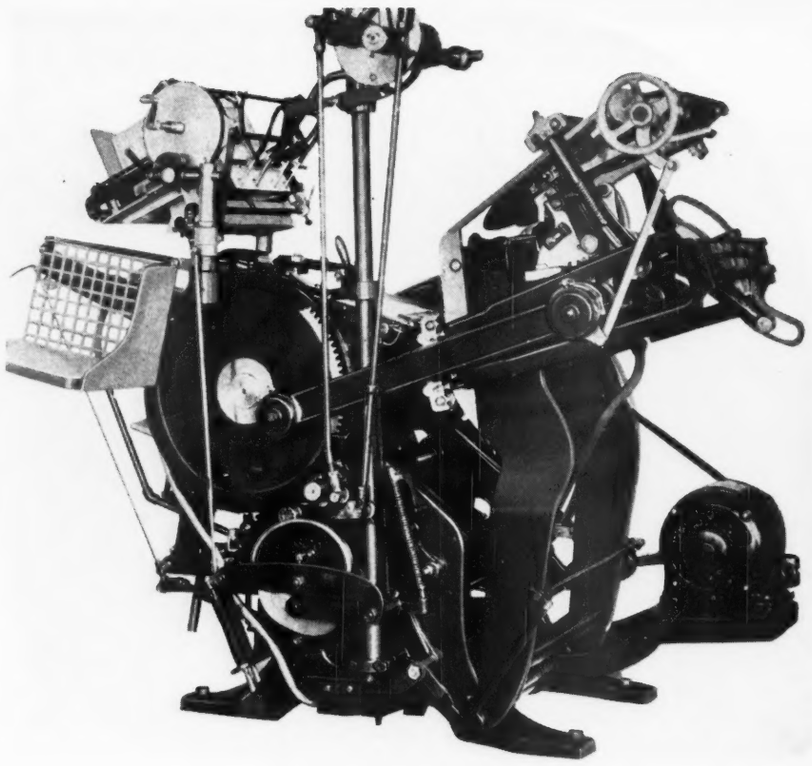

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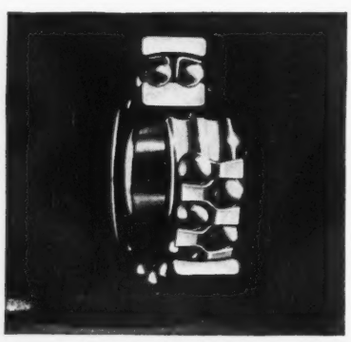

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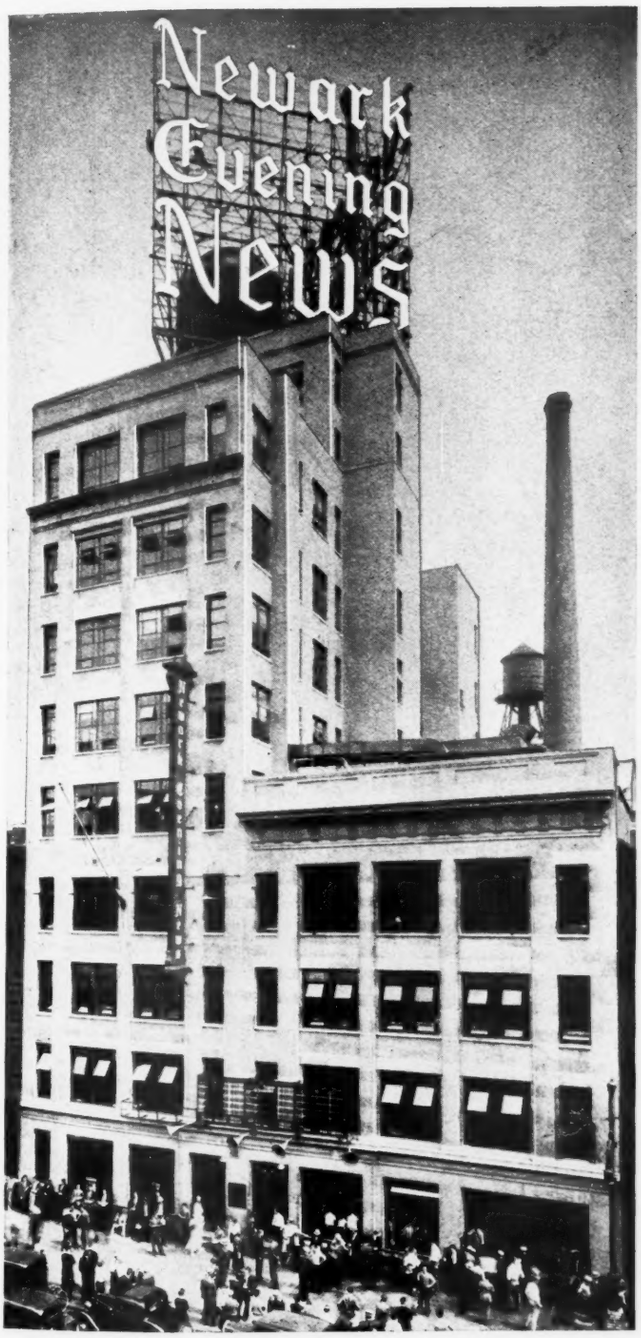

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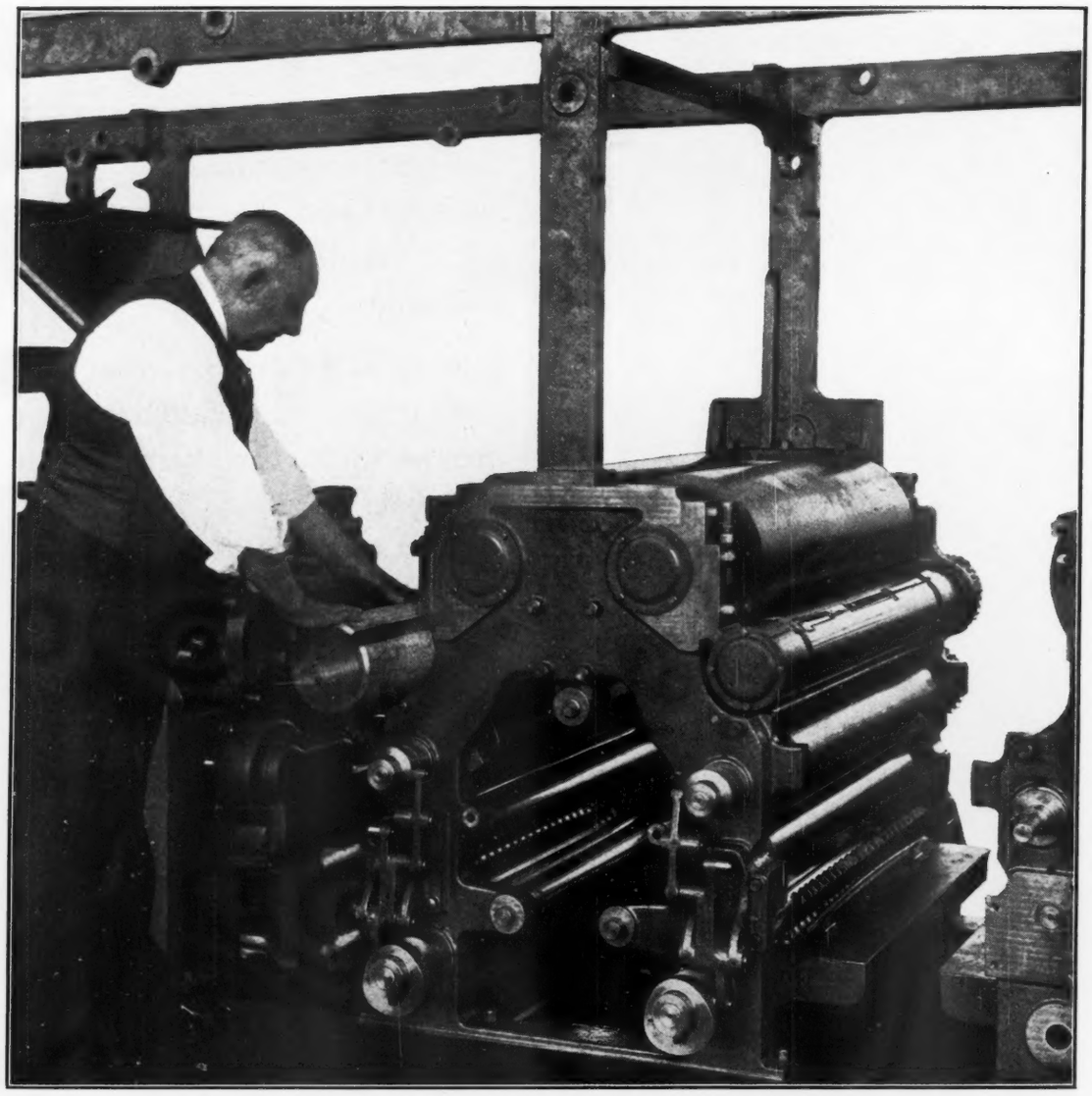

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Volume 49 *Number 1*

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Share Your Knowledge With Others

The key men in your organization will appreciate looking over the pages of this magazine. Perhaps one of them will be able to put some particular technical idea to good use.

Place a check mark in each square for attention of the department head or assistant whom you wish to look over special articles in this issue.

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☐ *Foreman Lithographing Department*

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Printing
EQUIPMENT
Engineer

for October 1934

Printing Research Institute

By ARTHUR C. JEWETT*

AT THE Fifth Conference of Technical Experts in the Printing Industry, to be held at the Benjamin Franklin Hotel in Philadelphia on October 8 and 9, one of the important events will be the completion of the organization of an Institute for Printing Research. The annual conferences of Technical Experts in Printing originated through the desire of the Committee on Survey and Research for the printing industry to promote interest in the possibilities of the advancement of printing through research.

The Printing Industries Division of the American Society of Mechanical Engineers has announced the appointment of

Edward Epstean, Chairman of Program Committee, Printing Industries Division, A. S. M. E.; former Photoengravers' Board of Trade of New York.

an organizing committee for the Printing Research Institute composed of Messrs. Arthur C. Jewett, Chairman; Edward P. Hulse, Edward Epstean, William C. Glass, Fred S. English, Burt D. Stevens, R. G. Macdonald, William R. Maull, Charles F. Clarkson, and John Clyde Oswald.

This conference of Technical Experts, which will be the charter meeting of the Research Institute, is open to every one having an interest in the technical phases of printing. There will be a registration fee of $2, to go to the Institute.

Arthur C. Jewett Is Developing a Plan for the Organization of a Printing Research Institute Which Will Be Completed at the Fifth Printing Industries Conference in Philadelphia.

Each one attending the meeting will be a subscriber member of the Institute for the year 1935 and will receive the proceedings of the conference and all bulletins and information issued by the Institute. The organization meeting will be held in the afternoon of Tuesday, October 9, at which time officers will be elected and constitution and by-laws provided for. The program of the Institute during the first year will probably be confined to seeking out and reporting results of research work of interest that has recently been completed by various companies and organizations in the printing or

*Chairman, Research and Survey Committee, Printing Industries Division, American Society of Mechanical Engineers.

related fields. Ultimately, a research program will be formulated and specific projects supported by the Institute.

Initially, there will be but one class of members composed of those who have paid the $2 registration fee at the forthcoming conference. It is planned, however, to have four classes of membership ultimately, composed of corporate members, association members, individual members, and research fellows. The classification is as follows: a corporate member shall be a firm or corporation engaged in printing, in the manufacture or sale of equipment or supplies used in printing, or otherwise interested in the printing industry. All corporate members shall be entitled to designate five representatives; an association member shall be an association or an engineering or scientific society interested and cooperating in the advancement of graphic arts field. Each association member shall be entitled to designate two representatives; an individual member shall be any person having an interest in printing and related matters; a research fellow shall be one who has made valuable technical contributions to the advancement of the industry.

It is planned that dues of corporate members shall be $100 per year, of association members $15 per year, and of the others $5 per year.

It is also planned that the organization shall be governed by a council composed of ten corporate representatives, five association representatives, ten fellows, and five individual members. An executive committee of six will be chosen from the council membership, and the terms of these members shall be for two years, one-half of them being elected each year.

The entire objective is the advancement of the printing industry and of those connected with it. The need is recognized for such an organization for the mutual promotion of research and printing and also to serve as a source of unbiased information on related technical and scientific matters.

CONFERENCE PROGRAM

The program for the Fifth Conference, Printing Industries Division of the A. S. M. E., as revised until *Printing* EQUIPMENT *Engineer* goes to press, is as follows:

MONDAY, OCTOBER 8, 1934

9:00 o'clock. Morning Session. Registration, Mezzanine Floor, Benjamin Franklin Hotel, 9th and Chestnut Sts.

NOTE: There will be a registration fee of $2. (Local members of A. S. M. E., Craftsmen Club and Philadelphia Typothetae need pay the registration fee *only* if they wish to join the Institute.) Fill out the registration card carefully with full name and address and also your business connection and title. This fee will entitle the registrant to membership in the Research Institute for the year 1935, including all reports and publications, and also to a copy of the Proceedings of the Fifth Conference.

10:00 a. m. Inspection trip through the plant of The Curtis Publishing Company, publishers of *The Saturday Evening Post, Ladies' Home Journal* and *Country Gentleman*. Group leaves from the hotel ballroom.

1:00 p. m. Luncheon. Ballroom, the Benjamin Franklin Hotel. (Ticket, $1.25.) Walter D. Fuller, First Vice-President, The Curtis Publishing Company, presiding.

"Opening Remarks," by Edward Epstean, Past President, Photo-engravers' Board of Trade of New York.

"The Photomechanics of Color Photography," by Harry A. Groesbeck, Art Director, Country Life-American Home Corporation.

Discussion, by Harold Fowler, Technical Supervisor, Bassani Processes, Inc.

3:00 o'clock. Afternoon Session. Ballroom, the Benjamin Franklin Hotel, Matthias D. Maull, President, Patterson & White, presiding.

"Opening of the Fifth Conference," by John Clyde Oswald, Chairman A. S. M. E., Printing Industries Division.

"Synthetic Resins as a Process Roller Material," by A. L. Freedlander, Vice-President, Dayton Rubber Mfg. Co.

Discussion, by W. S. Robinson, Manager, The McCall Publishing Company, and by E. R. Bridgewater, Manager, Rubber Chemicals Division, The E. I. du Pont de Nemours & Co.

4:00 p. m. "Rubber Plates for Letterpress Printing," by Messrs. Ralph Schwarz, President, and J. Homer Winkler, Ace Electrotype Company.

"Observations on the Technology of Rubber Plate Manufacture," by W. J. Ruscoe, Technical Representative, The B. F. Goodrich Company.

Discussion, by H. W. Haydock, President, Royal Electrotype Co.

6:15 p. m. Franklin Dinner (informal). Franklin Room, the Benjamin Franklin Hotel. (Ticket, $2.) Prof. G. E. Crofoot, University of Pennsylvania, Chairman of the Philadelphia Local Section, A. S. M. E. presiding. Speakers: Russell Duane, great-great-great-grandson of Benjamin Franklin, on "Franklin, the Printing Engineer."

8:30 o'clock. Evening Session. Hotel Ballroom. V. Winfield Challenger, Director of Printing, N. W. Ayer & Son, Inc., Secretary, Philadelphia Club of Printing House Craftsmen, presiding.

"Recent Developments in Offset Printing," by Burt D. Stevens, Vice-Pres., Miehle Printing Press & Mfg. Co.

"Photomechanical Reproduction of Offset Plates," by W. C. Huebner, The Huebner Laboratories.

Discussion, by H. A. Bernhardt, Director, Latham Litho & Printing Company, and by Randolph T. Ode, President, The Providence Lithograph Company.

TUESDAY, OCTOBER 9, 1934

9:30 o'clock. Morning Session. Hotel Ballroom. H. C. Cole, President, Acme Gear Company, presiding.

"From Design to Type—Processes in the Manufacture of Monotype Matrices," by Sol Hess, Art Director, Lanston Monotype Company.

10:30 a. m. Inspection trip through the Lanston Monotype plant, 24th and Locust Streets, and buffet luncheon there at 12 o'clock noon. (Bus fare and tickets, 50c.)

1:30 o'clock. Afternoon Session at the Franklin Institute, Planetarium entrance, 20th and Winter Streets. John Clyde Oswald, Chairman of Printing Industries Division, A. S. M. E., presiding.

"A Comparison of the Reproductive Quality of Aquatone and Other Printing Processes," by Maurice N. Weyl, President, Edward Stern Company.

Discussion, by William C. Huebner, The Huebner Laboratories.

2:30 p. m. "New Developments in Color Rotogravure Printing," by G. A. Fries, Supt. Artgravure Dept., *The News*, New York, N. Y.

Discussion, by M. Raoul Pellissier, Director, Gravure Foundation of America, and by Sol Weichselbaum, Sales Manager, Neo-Gravure Printing Company (The Cuneo Press).

3:30 p. m. "The Printing of Metal Paper," by R. E. Hunt, Service Engineer, Reynolds Metals Company.

Discussion, by V. Winfield Challenger, Director of Printing, N. W. Ayer & Son, Inc.

4:30 p. m. The Printing Research Institute.

Introduction: "What England, Germany, Japan and France Have Accomplished," by Edward Pierce Hulse, Secretary, Printing Industries Division, A. S. M. E.

Address: "Organizing the Institute," by Arthur C. Jewett, Director, College of Industries, Carnegie Institute of Technology, Pittsburgh, Pa.; Chairman of Research and Survey Committee, Printing Industries Division.

5:20 p. m. Visit to the printing exhibits of the Franklin Institute (special guides), 25 cents per person.

Annual Printing Equipment and Supplies Catalog Number

THE First Annual Printing Equipment and Supplies Catalog Number for November to be issued by *Printing* EQUIPMENT *Engineer* has aroused considerable favorable comment among manufacturers and buyers of printing equipment and related supplies.

In addition to a manufacturer's index this catalog number will contain a products cross-index of all printing equipment and supplies to make it convenient for you to locate the name and address of any manufacturer and the products he makes. It is our purpose to make the index as complete as possible so that it will be a truly representative reference book for the year. It is also the aim of *Printing* EQUIPMENT *Engineer* to render a distinct service to the mechanical and production executive, the printer and the manufacturer.

We have letters from manufacturers expressing pleasure with the project.

An equipment maker states: "Allow us to take this occasion to compliment you on your initiative in this matter and to wish you the greatest success."

An official of a press manufacturing concern states: "We wish to extend to you our many thanks for calling upon us for this information."

A manufacturer of stereotype equipment thinks "This is a wonderful idea and one which will again bring *Printing* EQUIPMENT *Engineer* to the front as a real service for the mechanical personnel of publishing plants."

A representative of a prominent supply manufacturing company says he thinks a complete catalog of printing equipment would be greatly beneficial to not only the manufacturers of printing equipment but to the supply manufacturers as well.

An equipment maker states: "An equipment and supplies catalog is something that is needed badly in the industry and we are heartily in accord with your plan to bring one out in conjunction with your November issue."

MIDNIGHT OIL AND THE TORCH

DESPITE the depression, printing's production or mechanical executive is eager to learn about new developments in the equipment and supply field. This desire is normally with him at all times because it is a part of his business to keep informed about new developments for the sake of improving his value increasingly to his employer. During these periods this activity is intensified because he has more time (hence more cause) apart from supervising production to devote to such things.

We have pointed out in the columns of *Printing* EQUIPMENT *Engineer* that considerable midnight oil has been burned in the experimental laboratory of the progressive manufacturer during the past few years in developing new and improved mechanisms and supplies to enable the printer to do better work at less productive cost or to offset increased labor costs. By helping the printing industry overcome some of its major production problems the manufacturer also helps himself.

And don't think for a minute that the mechanical or production executive has overlooked anything which has been brought to his attention which might be used advantageously from a production standpoint. He may not have been able to sell his ideas to his employer yet but will do so at the earliest opportunity. Some manufacturers have understood this and have brought their new products to his attention by consistent advertising.

News of activity in the United States Patent Office and word-of-mouth information indicate that most of the printing equipment and supply manufacturers have been at work solving many problems associated with printing processes. Some of these improvements have not been advertised because the manufacturer intends to include them in his catalog when business improves and he hopes that through merit they will gain the attention of the equipment maker and the printer.

The manufacturer who advertises in a depression reaches the mechanical or production executive at a time when his appeal is most effective. This is the time when he has the greatest reason for attempting to sell his employer on the idea that installation of improved equipment and supplies is to his best interest, either through production savings at the present time or to be prepared for the new kind of business era which is in the immediate offing.

The motives which urge the manufacturer and the mechanical executive are synonymous—the important thing is that the two shall be brought together through consistent advertising.

THE PROBLEMS OF COLOR STANDARDIZATION

ANY plan for standardization of newspaper color must be formulated to control selectively all the elements entering into the reproductive and printing processes. It is a complex subject requiring much further investigation and research.

The question revolves largely about the limitations of the mechanical equipment which is used to do the printing, the stock upon which the printing is to be done, the stepping up of future printing speeds, the selection of screens, benday effects and so on, whereby the artist and layout man may understand that they are working within prescribed limitations. These are problems to be settled by the A. A. A. A.-A. N. P. A. Joint Committee.

It is the thought of more than one student that the use of screens and benday effects to obtain color values will play an extremely important part in any plan for newspaper color standardization. Eventually, it might mean the adoption of a limited selection best suited for the purpose. However, the possibility of standardizing on certain screens or certain combinations of screens will require patient research.

Whether anything can be done about maintenance of a constant hue in newsprint is an element for consideration in formulating a plan. On the other hand, should this be impossible, the appearance of color on various tinted stocks would have to be considered. We do know that publishers have never been in agreement on the color of newsprint.

The proposal made by Mr. Berckmans and which is submitted for the consideration of the Joint Committee, demonstrates in a limited way what can be accomplished through the use of three colors and black. The sponsors of the plan do not specify certain shades of yellow, red or blue. Through modification and the use of different values of halftone screens it is suggested that many variations can be obtained

Continued on page 26

Screens and Benday Effects

Play an Important Part in Plan For Newspaper Color Standardization Presented in Graphic Insert

By Bruce Berckmans*

It is impossible in limited space, to explain in detail each of the many shades obtainable by the use of various screens, different rotations of printing and different combinations of colors with each other. With the cooperation of A. H. Burns, Production Manager of the New York *Herald-Tribune,* I have attempted to barely indicate in the accompanying color plate, the tremendous number of variations that are available merely through the modification or use of different values of halftone screens. The many benday effects used both direct and in reverse by newspapers could not possibly be shown in this article, so that I have used the solids in conjunction with different values of the sixty-five line screen, one of the most popular among newspapers.

Throughout the printing of the colors appearing herewith, the normal order or rotation of printing has been maintained, namely; Yellow first down, Red second, Blue third and Black last. Merely changing the rotation in which colors are printed will give substantially different effects. This is, of course, true not only when printing two colors but even more so when printing combinations of three and four colors. The colors used in conjunction with this article are not intended as our recommendation of the precise shades of yellow, red and blue which should be selected as a basis of standardization. They are merely the three most popular colors and black used by the newspaper color customers of J. M. Huber, Inc. I have used these colors because they will be recognized by many who will read this article.

I have used but three colors and black in order to suggest what can be accomplished with the minimum of colors with which four-color work can be produced. Any ink manufacturer or printer interested in establishing standards or in simplifying the number of colors used by newspapers today can readily add any number of yellows, reds, or blues to those shown herewith. Using the minimum number of colors as a basis to start on is far simpler than endeavoring to start with a larger number of colors and later going through the entire procedure again in order to eliminate one or more of the colors.

While inks can be modified in shade according to individual printer's requirements, it hardly seems reasonable that the greater portion of four-color newspaper work should not fall within the range of the 1,295 shades obtainable with only the four colors shown herewith. With the solid and four values of the halftone screen, one obtains twenty individual tones with three colors and black. There are a hundred and fifty shades obtainable from printing each of these colors over any of the others in normal rotation.

In normal rotation using any three colors, over five hundred shades or tonal values are obtainable and in four-color work, over six hundred twenty-five tonal values are obtainable. Consider, if you please, the almost infinite variety of additional shades obtainable if the normal printing rotation is modified. When, in addition, we add to these the number of screens and bendays and the tone value of each screen or benday that can be used to modify colors, the total number of shades available is almost beyond human comprehension. Any printer having a few dull evenings to spend, may amuse himself by computing mathematically, the total number of tone values obtainable. Obviously where solids cover screens, or over-printed effects too closely resemble each other, certain tones will not be of practical value. However, the total number of these is negligible compared with the great number of shades obtainable.

We are all familiar with the wide range of shades available to the commercial artist in crayons and water or oil colors. Too few artists know thoroughly the limitations of the media in which their creative efforts are to be reproduced. Whether the fault lies with the advertisers, the agencies or the newspapers is beside the point. The fact remains that the artist should be informed as to the limitations of the printing method and the broader facilities of the engraver. By simplification of colors, the commercial artist can standardize on those shades most practical for newspaper use. Using these shades and applying to them appropriate benday and screen effects, of which engravers can fur-

THANKS, MR. COBB

Printing Equipment *Engineer,*
Cleveland, Ohio.

I think you are putting in the field a very nice publication. I look forward to each issue.

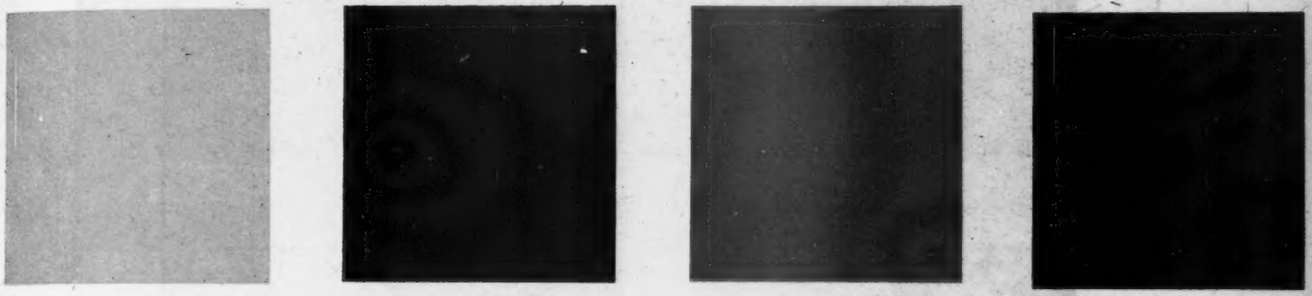
Cordially,
John E. Cobb, *Secretary,*
Milwaukee-Racine Club of
Printing House Craftsmen.

*Manager, Ink Division, J. M. Huber, Inc., New York, New York.

PLATE I . . . EXAMPLE OF 1296 SHADES OBTAINABLE WITH ONLY FOUR NEWSPAPER COLORS IN NORMAL PRINTING ROTATION

The shades shown here should not be considered arbitrary restrictions on the variety of colors that can be used. Because of space restrictions, I have shown only the most popular shades currently used by newspapers.

Four Popular Newspaper Colors in Order of Normal Rotation



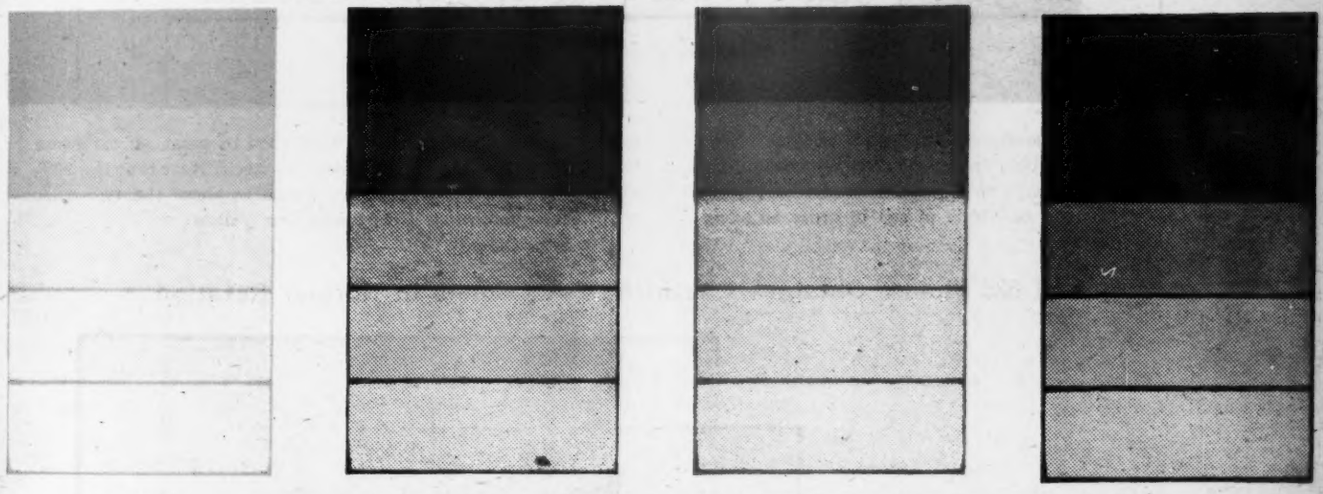
HUBER NEWSPAPER YELLOW 27056

HUBER NEWSPAPER RED 27052

HUBER NEWSPAPER BLUE 27078

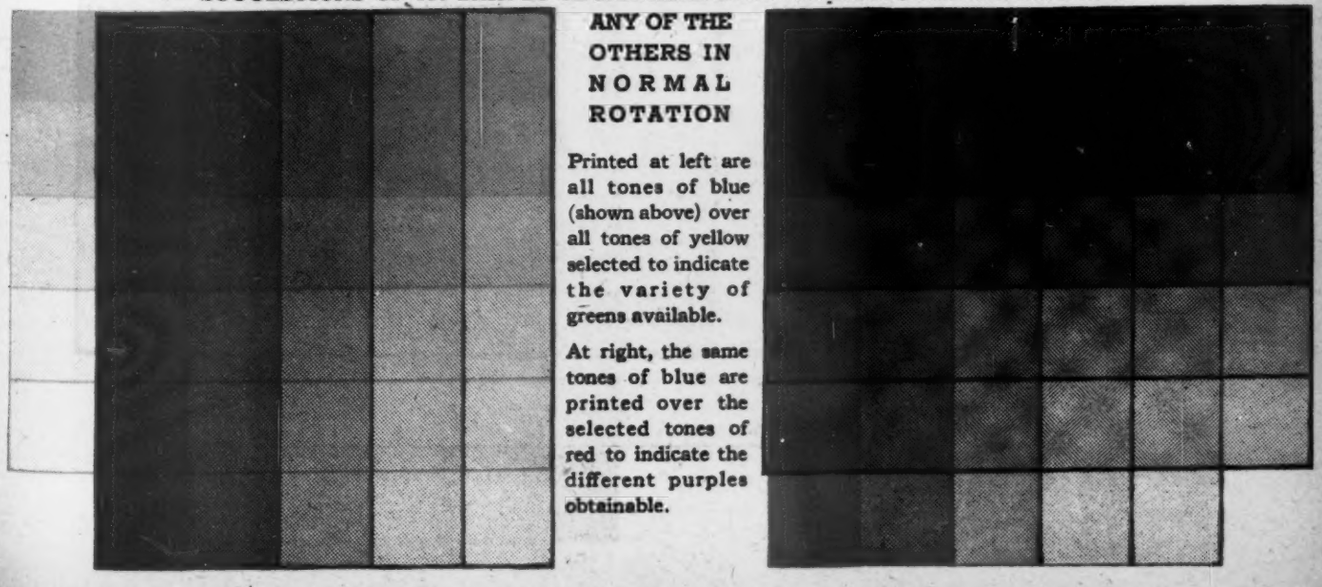
HUBER NEWSPAPER "BLACK 26579

Colors Shown Solid and in Four Screen Values Used by Newspapers



The 65 line screen values shown above are those popular with most newspapers. Space limitations do not permit showing the many benday and additional halftone effects used both direct and in reverse.

SUGGESTIONS OF 150 SHADES OBTAINABLE FROM PRINTING ONE COLOR OVER ANY OF THE OTHERS IN NORMAL ROTATION

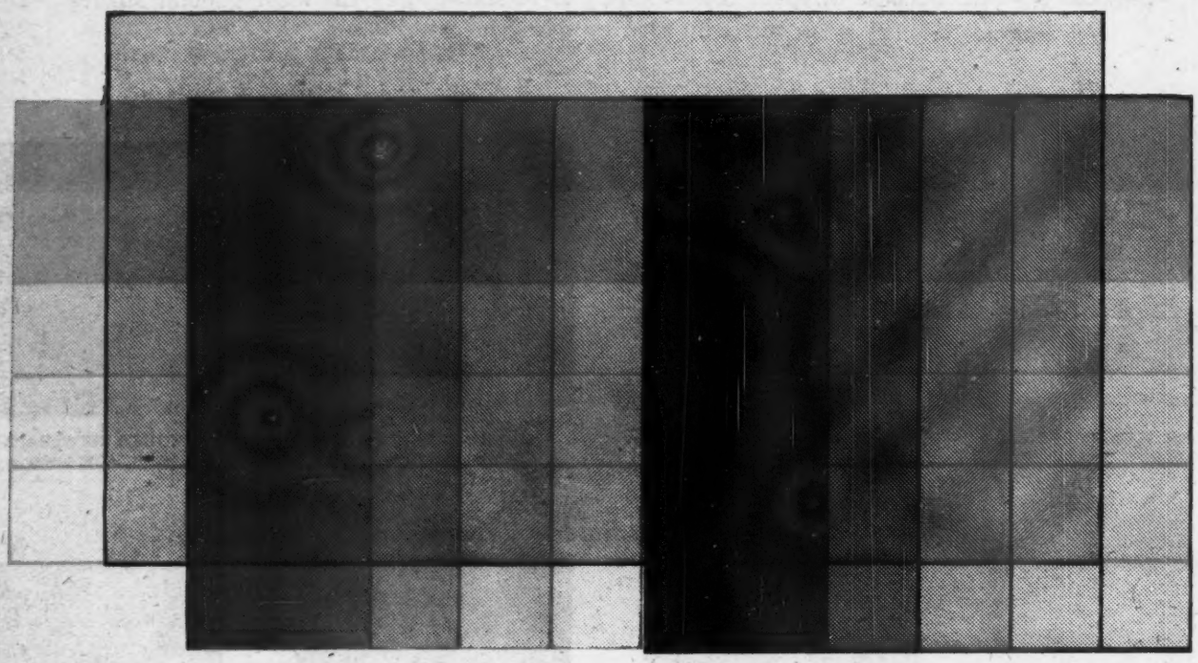


Printed at left are all tones of blue (shown above) over all tones of yellow selected to indicate the variety of greens available.

At right, the same tones of blue are printed over the selected tones of red to indicate the different purples obtainable.

PLATE II . . . EXAMPLE OF 1295 SHADES OBTAINABLE WITH ONLY FOUR NEWSPAPER COLORS IN NORMAL PRINTING ROTATION

An Indication of 500 Shades Obtainable with Three Colors in Normal Rotation

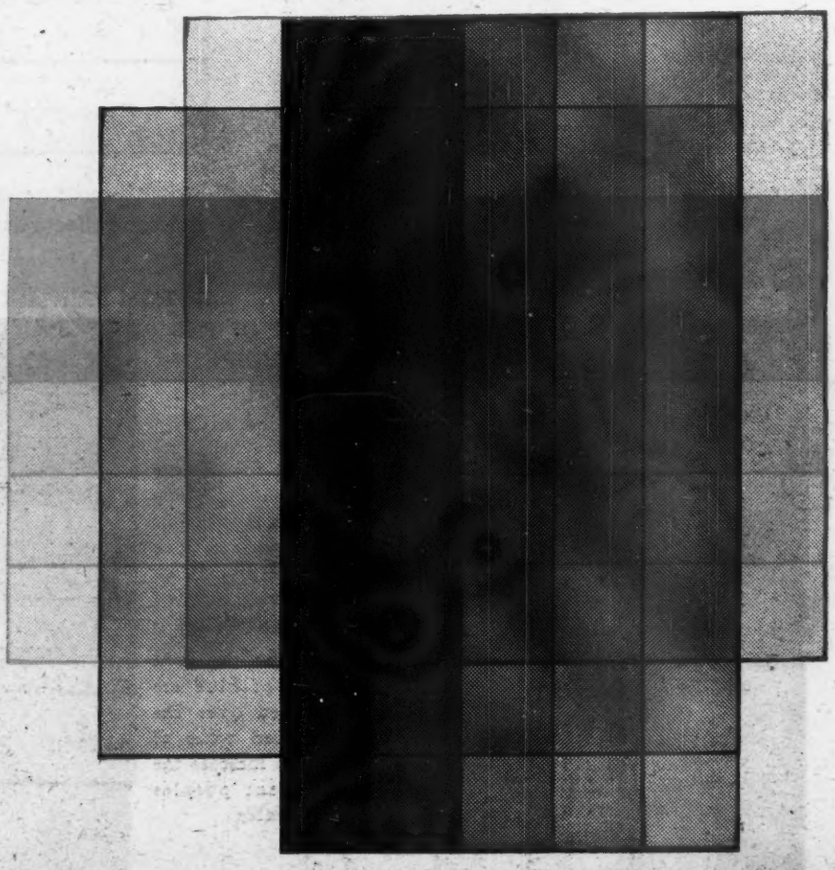


To indicate the possible variety of three color effects, I have printed all selected tones of blue and black over a medium tone of red which in turn is printed over all selected tones of yellow. It was advisable to use but one tone of red in order to avoid misinterpretation, and because we wished to print an extension showing the tone of each color used by itself. Note that the 20% value screen of black has been repeated to show the two color effect obtainable when it is printed over yellow.

Example of 625 Shades Obtainable Printing Four Colors in Normal Rotation

All selected tones of black have been printed over the heaviest blue value and the heaviest red value printed over all of the yellow tones selected.

In order to preserve the principle of showing each tone of each color by itself in an extension, it was necessary to limit the blue and the red to one value only, preserving the normal printing rotation.



nish him charts, the artist can obtain in his original work, the results which he expects to have reproduced. By attaching an appropriate guide to the original picture, the artist would specify the benday and screen effects which the engraver must use in order to get the proper color values in each portion of the drawing. The engraver should use newsprint and the same film of ink newspapers can carry in order to furnish a progressive that will approximate results obtainable in newspaper printing.

Sometime ago, a very large national advertiser had its artist create a drawing in which the artist used four different shades of blue in addition to the yellow, red and black. It required painstaking explanation to prove to the artist that the mechanical means of reproducing his work in a daily newspaper would not permit the use on one press of so many blues in addition to the other colors. Eventually the artist was convinced that by manipulation of screens and bendays, he could eliminate all blues but one and still obtain the desired effects.

The ink manufacturer must abide by the specification of his printer customer. The printer must obey the dictates of the space or printing buyer. The advertising agency caters to and sometimes I think fosters, the whims of its clients. The ink manufacturer as an expert in his products, can point the way to elimination of nuisances and duplications of effort. We can recommend a course that will result in economy and greater uniformity and faithfulness of reproductions. But, without the cooperation of advertisers, agencies, engravers and printers, the entire problem cannot be lifted out of its present highly disorganized and uneconomical chaos.

Developments In Electrotyping

Writer States Electrotypes Generally Have Greater Mechanical Precision Than Presses On Which They Are Used

By J. Homer Winkler*

The electrotyping industry will soon celebrate its hundredth anniversary. From an experimental beginning in 1838 it has grown to an industry that, in the United States alone, now furnishes employment to over 6000 people with products valued at approximately $30,000,000 annually.

Everyone will admit that tremendous developments have been made in the letterpress industry since its simple beginning. The essentials are still the same, but their application has become involved and complicated. A raised surface is still used to receive a film of ink which is then transferred by pressure to a sheet of paper, but the process has not been simplified by development. By comparison, electrotyping has also become more involved and complicated. It has not been possible thus far to eliminate any of the essential operations, although that has always been the aim of any investigator. On the contrary, each investigation usually results in a more rigid observation and control of some additional factors. A mold is still made in a plastic material, the face of this mold is then made electrically conductive, a metallic shell is electrodeposited on the mold surface, the resultant shell is backed up with a lead alloy and the plate thus prepared is mechanically finished so that it may be used for a particular letterpress printing job.

There is a tendency sometimes for those in other of the graphic arts, and even some electrotypers, to feel that the electrotyping industry has not made as great an advancement in technology as the average.

The facts show the opposite to be true. An appreciation of this progress will also encourage those interested in the industry to a continued effort in seeking the answer to its many problems.

The first United States patent issued on the electrotyping process was in 1855. Up to January 1, 1934, 270 patents were issued. In the past 10 years 47 patents have been issued as compared with 223 for the preceding 68 years. These figures serve to show that the average of patentable developments has increased in the last decade.

The developments may be grouped almost entirely into those connected with the molding operations, including the electrodeposition of the shell, the casting, and the finishing operations.

Several unsuccessful investigations have undoubtedly stimulated the imagination and thought of investigators in this field and if for no other reason they should be mentioned.

Continued on page 15

ELECTROTYPE INDUSTRY PROGRESSING

It is evident that the electrotype industry is very definitely progressing and its future depends upon the growth of the letterpress industry. Electrotypes as now produced are improving the competitive position of letterpress printing. Every printer will admit that he is now obtaining a better electrotype than ever before.

There have been many claims for various types of duplicate plates that were going to supplant electrotypes. Certainly, there is nothing that has been produced to date that will seriously compete with the electrotype. It is difficult to imagine any other form of duplicate plate making that will approach the same degree of quality at a comparable cost. The lead mold nickeltype is still the most accurate reproduction of a half-tone that can be made.

*Assistant Manager, Ace Electrotype Co., Cleveland, Ohio; Member Research Committee, International Association of Electrotypers. Abstract of paper read before the Toronto Meeting of the International Club of Printing House Craftsmen, August 26-29.

Modernistic Ornamentation

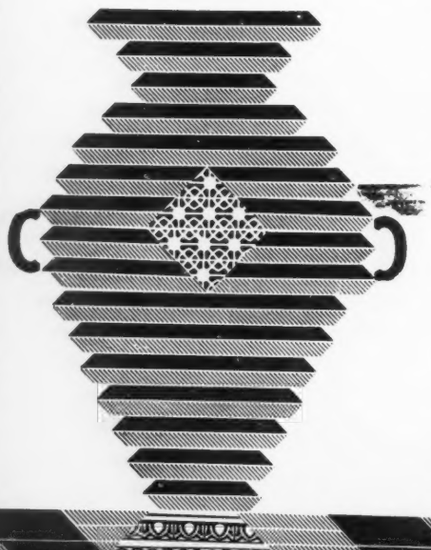
Created By Means Of Layout Sheet And Rotary Miterer—Designs Cut From Strip Material Cast In The Composing Room

By STAFF WRITER

Carlton C. Berry, Foreman Composing Room, Columbus (O.) Dispatch.

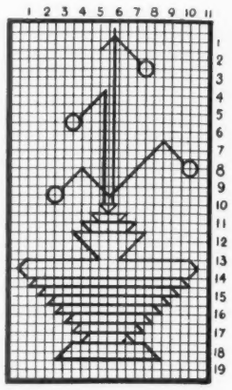
URNS standing upon tiled flooring, Chinese lanterns suspended by intricate festoonery, pagodas and lattice work, Egyptian scarabs, building groups reposing upon solid foundations, decorative gateways connected by patterned ropes—all of these in modernistic design appear in color upon the front page of the Columbus (O.) Sunday *Dispatch* Society Section.

The publishers of the *Dispatch* and Superintendent I. E. Tessier of the composing room are pleased with the creative work of Composing Room Foreman Carleton Berry, who is the originator of unique and modernistic pattern decorations and ornaments cut from Monotype border and rule strip material upon a Rouse vertical rotary mitering machine.



The general idea for this urn was taken from a vase on the porch of Mr. Berry's home. In order to provide a band to extend across this page, the tiled floor design was adopted.

The ornamentation which is used on the front page of the Society Section is not intended as a substitute for the usual photo-engraving which appears in many of these sections throughout the country, but rather as a means to render the appearance of the Society Section more effective when used in combination with photo-engraving. The *Dispatch* maintains a very complete engraving plant and it is the opinion that the combination of photo-engraving and Mr. Berry's modernistic creations give the Society Section a distinctive and pleasing appearance.



This diagram shows how preliminary designs are drawn on graph paper with pencil. After the design is completed, ems may be marked along the top and one side of the design as a guide for cutting Monotype or Elrod rule and strip material on a Rouse Rotary Mitreing Machine. Graph paper may be purchased through most any book or engineering supply house. In the case of this flower pot design the paper is ruled in tenths of an inch. Each space represents 6 points. For all practical purposes the use of the tenth-inch ruling to represent 6-point measure is entirely suitable for laying out designs according to the point system.

Mr. Berry states that he does the actual work of cutting out the designs after editions are out, or between times during the week.

The effectiveness of the design is dependent upon the kind of material selected to make up any particular pattern. Since it is desirable to obtain generally contrasting effects, black rule stock is used liberally.

Commercial printers could utilize Mr. Berry's plan for making appropriate ornamentation in many kinds of printing for special occasions.

The motif for this Egyptian scarab was found in one of the patterns of Mr. Berry's living room rug. It is composed of 14 pieces of 6-pt. face black Monotype rule; 14 pieces of 6-pt. body, 1-pt. face, music rule; 4 pieces 6-pt. shaded rule and 1 piece of 12-pt. face black rule, notched at the top to form the diamond shape. The material used to fill in around the design to form the rectangle, 7 ems by 16 ems, was cut from 6-pt. strip material in the same manner as the rule pieces.

When asked by the writer where he obtained ideas for designs, Mr. Berry stated that observation of objects in most any location, wherever he might happen on to them, furnished the ideas. These he has obtained from rugs and vases in his own home. Objects displayed in store windows have also furnished

Continued on page 33

TRADE LINOTYPE MARK

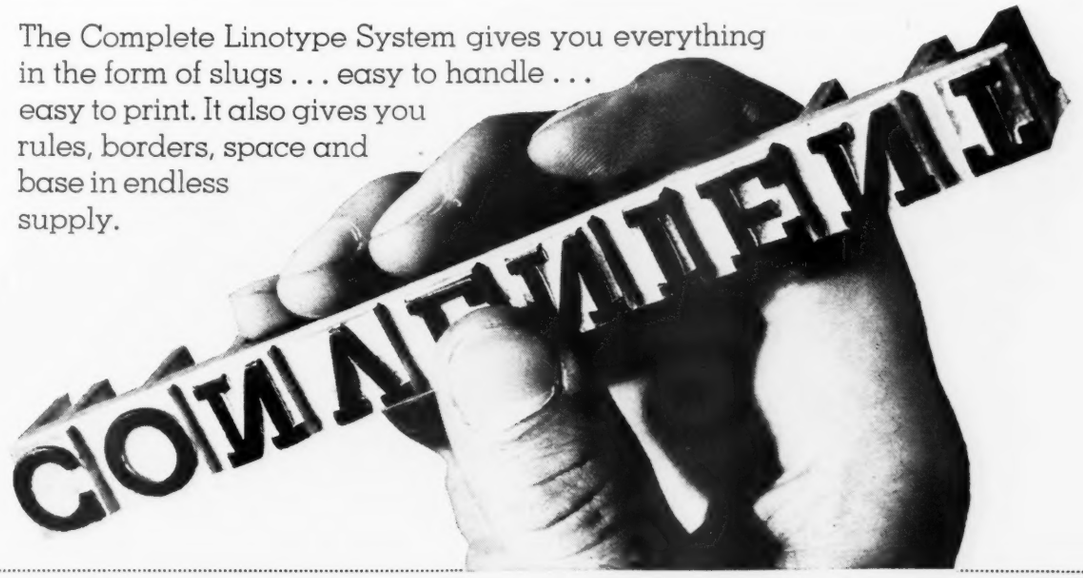
SIZE

The Complete Linotype System produces the largest face commonly used in the composing-room . . . 144 point.

RANGE

The Complete Linotype System gives you a full range of sizes from 144 point clear down to 5 point.

The Complete Linotype System gives you everything in the form of slugs . . . easy to handle . . . easy to print. It also gives you rules, borders, space and base in endless supply.



THE COMPLETE LINOTYPE SYSTEM

Linotype Memphis Family

MERGENTHALER LINOTYPE COMPANY, BROOKLYN, NEW YORK

A. I. G. A.'s New Offices

The American Institute of Graphic Arts has established new offices in the Grand Central Palace Building, 480 Lexington Avenue, New York City. These offices will be the executive headquarters of the Institute from which all activities will in the future be directed.

The new offices will combine the new Division of Education. Plans for the program of printing education contemplate broadening it into a more inclusive program of graphic arts education. The support and cooperation of all the related industries under the graphic arts is being urged by the Institute.

Four-Color Offset Press Demonstrated

One hundred and sixty-five members and guests attending the September meeting of the Milwaukee-Racine Club of Printing House Craftsmen were also the guests of Elmer Voigt, vice president of the Western Printing and Lithographing Company, Racine, at a demonstration of a new Harris four-color offset press.

Members not only watched the press operating at a rate of 3500 per hour, but also examined five other Harris offsets in operation.

The demonstration was in charge of H. A. Porter, Vice President in Charge of Sales of Harris-Seybold-Potter, and Wm. Guy Martin, Harris Central-West District Sales Manager of Chicago.

To Our Readers

Please mention *Printing* EQUIPMENT *Engineer* when writing to advertisers because you will receive the best of attention from the reliable firms who have taken space in this magazine, satisfaction will be given the advertiser and the executive staff of this magazine will be pleased in having brought you together.

The Picture Story of "Wood Dry Mats in the Making," No. 9

Conditioning the Mat for the Individual Newspaper

THE conditioning process is one of the most delicate steps in the preparation of a dry mat. Every newspaper has its individual shrinkage requirements, necessitating constant adjustments to the humidifying apparatus. The foreman of this department maintains a record showing the exact shrinkage desired by each newspaper and he knows the amount of moisture needed in a dry mat to provide that shrinkage. In addition to this personal supervision a moisture test is taken and a record kept on every case of mats shipped from our mill. The operator in the above picture is starting to make his test by weighing a mat which has just been conditioned.

WOOD DRY MATS
ALWAYS UNIFORM

WOOD FLONG CORPORATION
HOOSICK FALLS, N. Y.

. . Electrotyping

(Continued from page 11)

DEVELOPMENTS IN MOLDING OPERATIONS

In cooperation with the United States Bureau of Standards and under a Research Associate plan of that Bureau, the International Association of Electrotypers conducted a continuous program of research for a period of seven years, starting in 1924. The exact worth of this work would be difficult to estimate, but it certainly ushered in a new era of technical control and a more thorough understanding of the scientific principles underlying the electrotyping process.

The first investigation dealt with nickel electrotyping solutions which resulted in the development of a simple formula for nickel deposition that is still widely used. A solution formula for use on lead molds was also developed and has been successfully used. It was not possible, however, to eliminate all trouble with nickel deposition as a result of this study.

The graphite study resulted in the publication of a set of specifications for the kind of graphite to be used in the various electrotyping steps. This resulted in more uniformity and the discontinuance of certain unfit grades that had been used. The care and operation of graphiting machines were outlined and an explanation of the nature, properties and composition of graphite and graphite films was given. It is interesting to note that the average graphite film on an electrotype mold was found to be between 0.00001 and 0.000001 of an inch in thickness.

The subject of additional agents for copper electrotyping solutions was next studied. Phenolsulfonic acid was found to be most satisfactory. Outside of the improved character of the copper deposited it has made it possible to speed up the deposition of the shell.

CHROMIUM FOR LONG RUNS

The conditions for operation of a chromium plating solution were worked out at the Bureau for another purpose, following which it was immediately tried out experimentally on several electrotypes for different kinds of work. It has been found successful where an unusually long run is to be made or where other conditions may indicate its advisability. The records of the service of these plates have amply justified their additional cost. Undoubtedly the use of chromium plated electrotypes will increase. Chromium has entirely replaced iron as a facing used in increasing the wearing life of electrotypes.

PROBLEMS OF STRETCH AND SHRINKAGE

The last problem of the cooperative research was to determine at what operations and exactly what amounts any stretch or shrink occurred during the manufacture of electrotypes. Methods for accurate measurement of plane and curved surfaces were worked out and the results of this study have been most valuable. They have found considerable application in the industry since their publication.

SUBSTITUTE FOR GRAPHITE FILM

The International Association of Electrotypers then conducted an independent research project for two years on the subject of a substitute for the graphite film. The most promising results along this line were obtained by the use of a process that would precipitate a film of metallic silver on the mold surface very similarly to the manner in which a glass surface is silvered for use as a mirror. Films of other metals have also been tried in this connection but silver seems to be the most promising.

The Division of Tests and Technical Control of the United States Government Printing Office made a successful application of a device used in the plating industry in its electrotype foundry, consisting of a semi-automatic conveyor which has been installed on each of two tanks containing the copper electrotyping solutions. The cases are suspended on an endless belt conveyor and make a circuit of the solution and are then removed. An average copper shell having suitable physical properties is deposited during this cycle. These units have been operating satisfactorily for a couple of years.

A very ingenious application of electrotyping was made at the United States Bureau of Engraving and Printing a little over 10 years ago and is still successfully operated in the Electrolytic Section. Intaglio printing plates for use in printing United States currency are being prepared by depositing a heavy shell of a metal against an original steel engraving. This shell, after being separated from the original, then becomes the equivalent of an electrotype mold and in turn a heavy deposit is made on its face. When this deposit has reached the desired thickness, it is separated and machined to the requirements for their printing conditions. The face of these electro-deposited plates consists of nickel which is later chromium plated. The application of chromium plating to the surface of these plates has resulted in a considerable increase in the wearing life of the plates. The face shell of these plates is backed up by iron that is successfully electrodeposited to a thickness of a little over ¼ in. instead of pouring a lead alloy. Commercially successful iron plating to such thicknesses was accomplished only after considerable research and experimental work.

HEAT TREATING ELECTROS

The Battelle Memorial Institute of Columbus, Ohio, found that electrotype metal was susceptible to heat treating and if desired may be hardened or softened after the plate has been backed up. This information will undoubtedly find wide application on certain classes of electrotypes, such as binders' dies, dry mat patterns, etc. They also studied the causes of "graining" or "dimpling" on the outside faces of curved electrotypes and suggested a remedy that is generally successful.

MOLDING WAX COMPOSITIONS

Molding wax compositions have received considerable attention in the past 10 years. Prior to the World War, practically all of the molding wax compositions used in this country were prepared with Austrian ozokerite as a base. A number of waxes that had never been used were found to be satisfactory. Quite a few electrotypers are still using vegetable and animal waxes instead of mineral waxes although there is no longer any difficulty in obtaining ozokerite. A number of companies prepared compounded wax to sell for this purpose. The physical properties and chemical constitution of these waxes were studied in connection with their development. As a result, molding wax compositions are more uniform, their care and use has become standardized and the secret empirical formulas have almost become a thing of the past.

MOLDING IMPROVEMENTS

There have been a number of attempts to prepare a molding material using wax as the base with a thin sheet of metal above or below the wax or both, thus resulting in a layer molding medium. Various combinations of this general nature have been made but apparently they have not been as successful as was expected. The most successful material of this kind consists of a thin sheet of aluminum on which a wax composition is poured. The surface of the material is distorted during the process of making a mold and therefore does not require much, if any, building. Having a preliminary film of graphite, the subsequent graphiting is easier. This material will probably have some definite application in our industry.

Continued on page 18

On the next page

is an announcement of vital importance to all manufacturers of printing equipment and supplies

Once Again

Printing EQUIPMENT Engineer fills a long felt need of the printing industry

★ In the past few years we have been asked by a number of production and mechanical executives in commercial, magazine, and private printing plants, as well as newspapers, "why don't you get out a Catalog for the industry." They told us that we were the logical people to undertake this work. We checked up and found no complete catalog had been issued in the industry since early 1932. Therefore this undertaking is long overdue.

★ *Printing* EQUIPMENT *Engineer* therefore announces a 1935 Printing Equipment and Supplies Catalog number for November. It will contain an index of all manufacturers supplying the printing industry — a products index, cross-indexed for ready reference — and, of course, our regular November editorial matter.

★ Advertising space will cost no more than for a regular issue — but the advertiser gets the value of a complete Catalog and a regular issue.

★ Every advertiser will receive three or more bold face listings. Those who use two or more pages have the privilege of using a color (red), gratis. The book itself will be side-stitched and bound in a substantial cover. This book will be placed in the hands of 7,000 hand-picked mechanical and production executives — the real buyers of the industry — in plants with sound credit ratings and actively buying equipment and supplies. It will not depend upon sales for distribution.

★ Here is a real advertising buy! This 1935 Catalog will be good for twelve months. Send in your reservation for space at once.

PRINTING EQUIPMENT ENGINEER

1370 ONTARIO STREET CLEVELAND, OHIO

. . Electrotyping

(Continued from page 15)

In connection with the molding operation it is important to note that more attention is being paid to the manner in which forms and original etchings come to the electrotyper than ever before. The electrotype buyer is becoming cognizant of the fact that a perfect printing plane in his original forms and plates will insure a more nearly perfect electrotype. Ingenious methods have been developed also by electrotypers to prepare patterns for molding and to protect them in view of the manner in which they are to be used. Strips of gummed tape are frequently applied around the bearers of halftones to preserve the soft edges. Many methods are used to obtain slight differences in the height of the shell to retain all of the printing value present in the original.

WIDER APPLICATIONS FOR WAX ENGRAVINGS

At least three very accurate machines have been introduced for wax-engraving and a greater use of wax-engravings has come about as a result. Because of the various operations and additions that can be made on these machines to a mold of a type form, pattern, or original etching, wax-engravings are being used more than for charts and ruled forms.

A process for preparing duplicate originals, wherein an extremely heavy shell of copper is deposited and later machined to the same thickness as halftone copper, has found considerable application. Such plates have been found as satisfactory for printing or molding as the originals.

SPEEDING UP OF DEPOSITION

The demand for increased speed in the manufacture of electrotypes has resulted in a more rapid deposition of copper in most foundries. Three or four hours, at least, were formerly required to deposit the average electrotype shell. In 1927 it was reported before the International Association of Electrotypers that copper shells could be produced commercially in 15 minutes. There is no doubt that these shells were every bit as tough and as thick as the average. The conditions for the rapid deposition of copper require considerable change in the average foundry set-up and it is only under the most favorable conditions that a satisfactory shell can be deposited in the small amount of time reported above. By adjusting the conditions of operation, most electrotypers have been able to produce satisfactory copper shells in a fraction of the time formerly required. It must be understood that all shells can not be produced in this manner unless a foundry is especially equipped for that purpose.

Another factor that has made it possible to deposit more rapidly is the increased attention of the temperature control of the copper solutions by the electrotypers. The use of various cooling coils and devices for maintaining a fairly constant temperature in the solutions has improved efficiency.

Methods for analyzing the solutions used in the electrodeposition of nickel, copper, and chromium have been simplified and published.

MATERIALS BOUGHT ON SPECIFICATION

Specifications have been prepared and published for many of the materials that are used in the electrotyping process such as graphite, nickel anodes, nickel salts, etc. The use of material bought on specification tends to uniformity of quality and to reduce the irregularities that would naturally result from differences in these materials.

The soldering fluid, tin foil, cleaning solutions, and various other miscellaneous compounds and chemicals that are used in electrotyping are now checked and bought on the basis of their chemical and physical properties rather than trade names, as was almost exclusively done in earlier years.

IMPROVEMENTS IN CASTING PROCESSES

The casting process in our industry has received considerable study. There have been a number of patents issued covering the backing-up of electrotype shells in pans so that a perfectly flat cast would result. In some cases the faces of the shells are held flat against the casting pan by pressure from the back, in others by suction from the front, and in still others by mechanical grids. Unfortunately there does not seem to be a casting pan, with such devices in connection with it, that is now satisfactory for general use. Undoubtedly this problem will receive considerable attention within the next few years.

Various pumps for transmitting the molten electrotype metal and devices for pouring it on the shells, devices for pouring exactly the same amounts in successive casts and for maintaining a uniform temperature in the metal pots are coming into more general use.

DEVELOPMENTS IN FINISHING OPERATIONS

The greatest number of developments and the most important ones in the electrotyping industry have been of a mechanical nature in connection with the plate finishing operations. Almost every machine used in the electrotyping processes has been studied and improved. The speed, capacity, accuracy, or efficiency or all of these factors have been improved.

The development of precision machinery for certain of the electrotyping processes was the outstanding achievement of the period. Among them may be listed molding presses, correcting and "bumping" presses, shaving machines, combination roughers and shavers, curving machines, routers. The accuracy, performance, and mechanical nature of most of this equipment is excellent. The introduction of precision machinery has made it possible for the electrotyper to manufacture plates that will meet the most rigid specifications. Actually, electrotypes generally have a greater mechanical precision than the presses on which they are used.

An entire set of electrotype machinery has been recently developed for casting and processing curved electrotypes in the curved position.

A jig for the assembly of multiple units for pattern or printing purposes is now being used successfully. Perfect register of two or more colors may be retained by the use of this device.

Two types of register tables are now sold that permit the accurate checking of position and register of patterns and forms before they are molded and of the electrotypes after they have been completed. These tables are especially valuable where color process work is being assembled together with other units, in more than one color, to form composite plates.

ACCURATE WOOD PLANERS

In spite of many experiments to find a more suitable mounting material for electrotypes, wood is still the most practicable. A new wood planer was developed several years ago that will plane the wood to a surface level of plus or minus 0.001 in. The manufacturers of blocking lumber have developed a high degree of accuracy in their planers and are now furnishing regularly planed-to-gage lumber within a thousandth of an inch of a specified height.

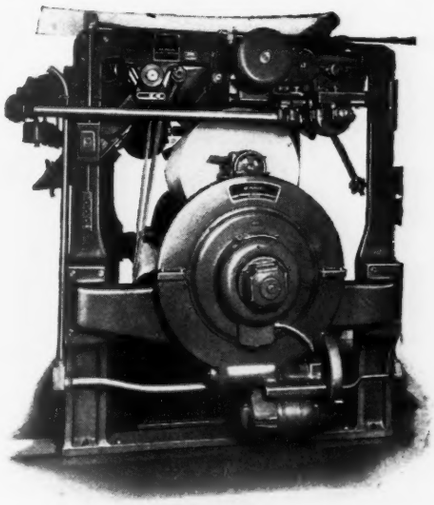
PRECISION PROOF PRESSES

The use of precision proof presses in checking electrotypes during their manufacture and after their completion has become almost universal in the industry. At least three types of very accurate presses for this purpose have been developed and improved within the past ten years. Gauges for accurately checking the thickness of plates and bases are also being used to great advantage.

The Wood Autopaster

A device for automatically splicing paper rolls at full press speed

The most revolutionary aid to publication which has appeared since the invention of the Autoplate Machine



A man presses a button; a full paper roll thereupon automatically replaces an expiring one; the press meanwhile maintains, uninterruptedly, its usual running speed, while only copies which actually contain splices are discarded as waste—*here indeed is something new under the sun.*

Already in use by

The New York Times *The Toronto Star*

The Chicago Tribune

while a battery of Autopasters is under construction for

The London Daily Mail

Says John Firth, of *The London Daily Mail* in *"Printing": "American newspapers are now 'autopasting' conscious. The Wood Autopaster successfully makes a join at any speed, its operation being the acme of simplicity."*

WOOD NEWSPAPER MACHINERY CORPORATION

MAKERS OF FINE NEWSPAPER MACHINERY

501 Fifth Avenue, New York

ANNOUNC
TO THE METROPOLITAN N

IN 1928 we put the Wood Steel Press upon the market. *The New York Times* then installed the first of its fast Wood machines, and it has now in use the equivalent of 15 Wood steel sextuple presses.

To these machines *The Times* is attaching Wood Autopasters, so that already more than half of them are automatically replenished with paper while running at full speed.

The Philadelphia Evening Bulletin, The Chicago Tribune, The Cincinnati Times-Star, The St. Paul Dispatch, and *The Boston Record,* in this country, *The Daily Mail* and *The Daily Mirror,* in London, and *L'Intransigeant*, in Paris, have purchased similar presses.

This fundamentally new press — the fruit of long researches by the Wood Laboratory — introduced for the first time high-speed newspaper printing, with good typography and accurate folding, which theretofore had been thought impracticable. The Wood steel folder, for instance, which is the fastest and most accurate folding machine in existence, has been run successfully at 81,000 products an hour, and, like the rest of the Wood press, is unbreakable. This is a good measure of our achievement. While we have not yet brought the speed of printing up to that of our folder, we are nevertheless making rapid strides in this direction. Being its designer and builder I can speak with accuracy of the capabilities of the Wood Steel Press.

Having abandoned cast-iron in working parts and the use of plain bearings, we introduced steel for the first time in newspaper printing press history as a generally-employed metal, as well as anti-friction bearings. The use of these more expensive materials and the finer workmanship which our construction entailed necessarily increased

CINCINNATI TIMES-STAR

My dear Mr. Wood:

We thought well of Wood presses when we ordered them and they have more than worked up to our anticipations. They are running smoothly, getting out our editions rapidly and doing a good job of printing.

The enthusiasm of the men in our pressroom for our new presses is one of the striking things about our new plant, and I am glad to tell you of the enthusiasm of our entire organization for Wood presses.

HULBERT TAFT.

WOOD NEWSPAPER MACHI

MAKERS OF FINE NEWSPAPE

Originators of

Automatic Stereotyping ***Modern Fast Newspaper***

NCEMENT
NEWSPAPER INDUSTRY

the cost of press building. This in turn acted to raise the sales price of Wood Steel Presses substantially above that of other presses.

Our engineering department thereupon set to work devising methods and tools by means of which costs could be reduced without sacrificing the speed or dependability of our press, or the quality of its product. As this work has now been finished, *we are able for the first time to offer Wood Steel Presses at a popular price.*

This price has been made uniform for all purchasers. It varies only with the numbers of printing units and folders selected. Thus for the first time a newspaper press is put upon the market at a fixed and open price; we may be said to have established for printing presses what is in effect a "rate card."

The one-price policy which prevails in all departments of our business enables us to maintain in the manufacture of our machinery a standard of excellence which cannot be achieved where prices are the subject of negotiation. Machines necessarily vary in quality as they vary in price, despite the prevailing belief to the contrary.

It has become our firm conviction, which is born of long experience in the production of newspapers wherein the maintenance of schedules is imperative and manufacturing costs must be rigidly controlled, that the use of any but the most effective and dependable machinery is wholly inadmissible. Where prestige and profit alike depend upon certainty of issue, machine failures should be placed beyond the realm of possibility. The painstakingly-made products of our shops — simple, rugged, dependable — provide the best insurance we know of against such routine catastrophies.

HENRY A. WISE WOOD,
PRESIDENT

The New York Times

My dear Mr. Wood:

I congratulate you upon the continued performance of the Wood press, which has done even more than you claimed for it when it was installed in The New York Times.

It has uniformly maintained a low waste record, combined with an astonishingly high production average. Its continuously satisfactory performance has removed it from the experimental sphere, and it has successfully introduced an unusually fast-running printing press which all publishers requiring speed with first-class production will doubtless welcome and encourage.

Its work has fully justified our selection of it.

ADOLPH S. OCHS.

M CHINERY CORPORATION
E NEWSPAPER MACHINERY
Originators of
Newspaper Printing *Automatic Web Splicing*

The Automatic Autoplate Machine

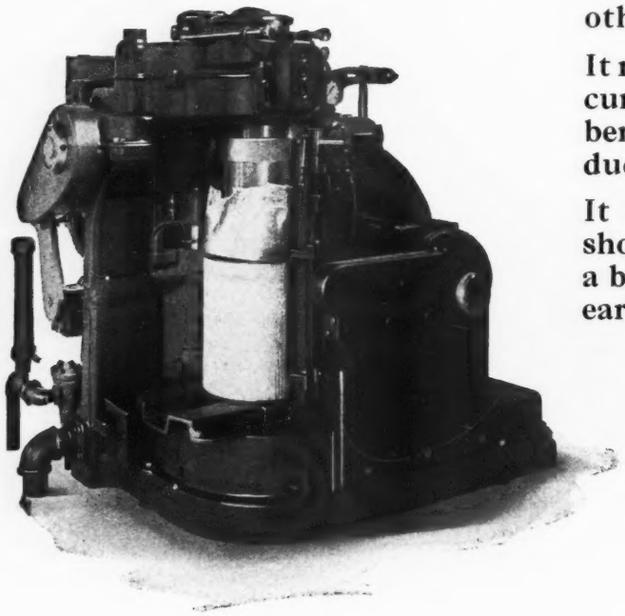
The Standard Machine Used by the World's Foremost Newspapers

THE AUTOMATIC Autoplate Machine produces four plates a minute — four plates of the highest quality ever made in newspaper stereotyping.

It occupies no more space than a Junior Autoplate Machine, and doubles that machine's production.

It produces plates of lighter weight, and the strongest plates ever made.

It eliminates the plate variation which is inseparable from the most skillful hand operation. It therefore standardizes quality, in addition to insuring, automatically, a fixed and dependable rate of production.



It greatly reduces the physical effort involved in making plates, and thus relieves the operator of strain and conserves his energy and time.

It insures a maximum number of casts per mat — a practically unlimited number from a good mat — because the mat is in contact with hot metal for shorter periods of time.

It is very easy to operate. The operator simply inserts the mat and presses a button. The machine does the rest automatically, ejecting four plates a minute. It has no other speed.

It makes it possible to schedule, accurately and dependably, the number of plates which can be produced in a given length of time.

It facilitates running late news, shortens the time required to start a battery of presses, and makes for earlier finishes in the pressroom.

An immediately profitable purchase in good times or bad

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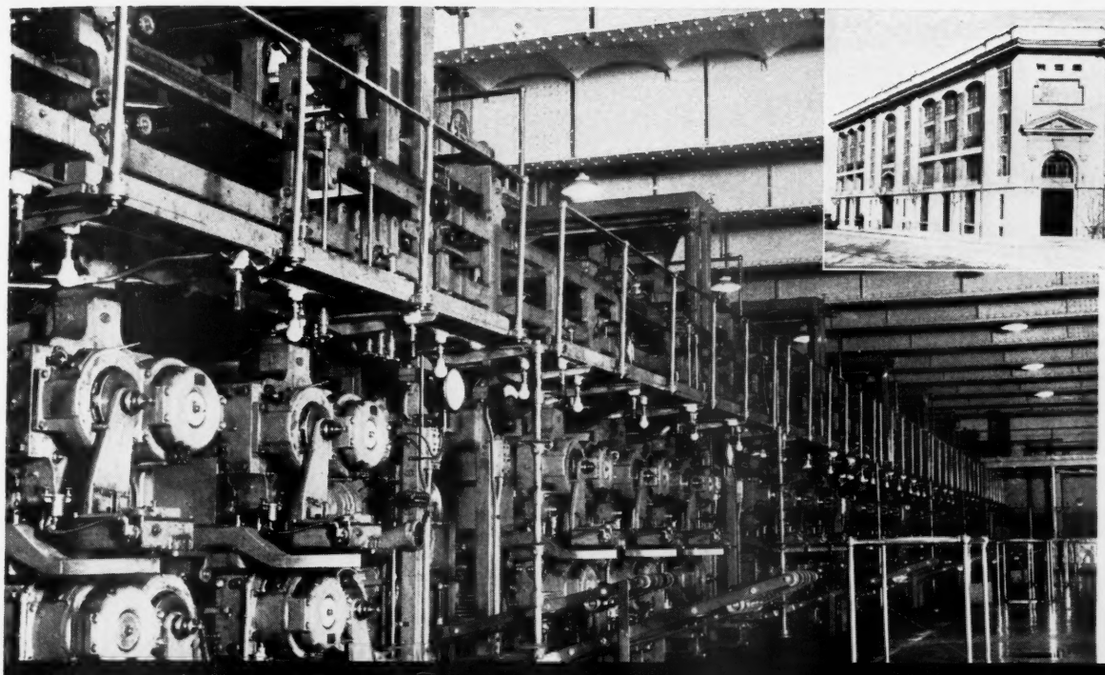

● *New plant of La Prensa, Buenos Aires, Argentina—largest newspaper in all South America.*

● *Twenty-one Hoe Super-Production Press Units in La Prensa plant. Every one 100% equipped with Goodrich Rubber Printers' Rollers.*

SOUTH AMERICA'S LARGEST PAPER *Equipped* 100% *with* GOODRICH ROLLERS

La Prensa Uses GOODRICH ROLLERS Exclusively in New Buenos Aires Plant

You would expect superintendents in this country to specify Goodrich Rubber Rollers—they can see and check, in plants all around them, the faster production, better printing, longer life of these better rollers. But Argentina is a long way off. Yet when La Prensa of Buenos Aires built a fine modern plant, with 21 new Hoe Super-Production press units, every one of them was 100% equipped with Goodrich Printers' Rollers.

The fame of Goodrich Rollers has spread even that far because there are few if any other single items in the press room that can add so much to the efficient production of a modern newspaper.

Goodrich Printers' Rollers, made of a perfected rubber compound, absolutely assure faster production and clear, sharp printing throughout the run. These Rollers do not pit nor swell at the ends, and they are always uniform regardless of temperature or humidity. As a result, you have no shutdowns for resetting or washups, and production time and operating costs are reduced.

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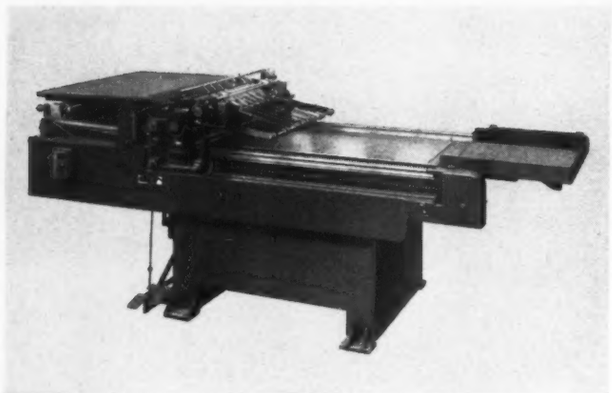

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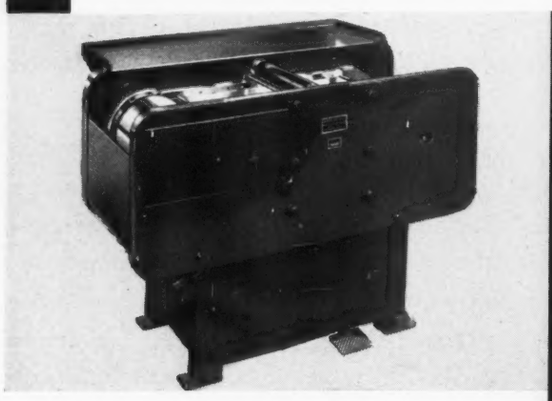
Learn why all major newspapers in New York City operate No. 325-A Presses or the No. 25 shown below. Write NOW.



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No. 23 Vandercook Electric Proof Press gives *good* proofs up to six full columns wide at the rate of 40 per minute.

This new, compact, high-speed press is equipped with special Vandercook impression cylinder and rubber rollers insuring good proofs from forms and galleys that vary as much as .015 in height.

Necessary equipment to the large newspaper where speed is important. Write for complete information and prices.

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908 North Kilpatrick Ave. Chicago, Illinois

Sectional Stereo Plates

For Imprinting Newspaper Size Pages —Sections Cut and Beveled on Special Machines Devised by Carl Petit

By DRY MAT BILL

IT IS a considerable part of the business of the Consolidated Press, Cleveland, Ohio, to print four-page newspaper size sections for manufacturers doing business on a national scale (such as the Sherwin-Williams Company in Cleveland).

These sections are for dealer distribution and in many instances similar sections will be sent to several dealers in as many towns. For instance, a dealer in a small city will require 1000 sections for his personal use and in a larger city another dealer may want 5000 copies or more of the same section. In all cases, the dealer's name and address is printed on the section.

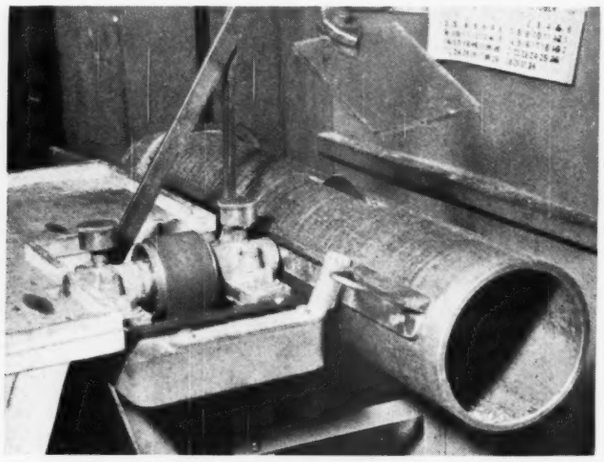

Fig. 1.—View of Pettit stereotype plate slitter. The saw slits the plate (which contains six imprints) into narrow sections. The sections are taken to the machine shown in Fig. 2 where they are beveled.

Formerly, at the Consolidated Press, it was customary to cast an entire stereotype plate containing the dealer's firm name and address strip in proper position on a full size plate. The plate was then locked in a separate unit on a Duplex Tubular Press and handled just as though it were a color run. In other words, the page on which the address strip was to be printed contained an open space which was filled in by printing

Continued on page 25

. . Stereo Plates

(Continued from page 20)

from the extra plate on a separate unit. This method of casting and routing a separate full plate for each dealer's address entailed considerable preparatory work.

Carl Pettit, stereotyping superintendent, however, has improved the method of casting, routing and trimming the dealer address plates so that it is now possible to cast six dealer addresses on one plate. By designing two special machines for the purpose, Mr. Pettit provided a means for cutting the large plate into six sections. Adoption of this system has resulted in a 120% increase in production and has been the means of a saving in mats amounting to 200%.

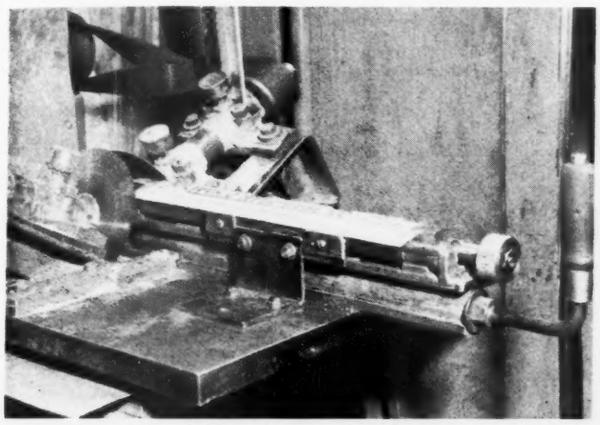

Fig. 2—Pettit imprint plate beveling machine. The two saws are mounted to cut a 40 deg. bevel on two sides of each imprint. The plate is then ready to be locked by special clips on an impression cylinder of a Duplex Tubular Press. The beveling saws are driven by a 2½ h.p. motor and operate at a speed of approximately 3600 r.p.m.

After each section is beveled it is locked on the impression cylinder. One side of the plate section is held against the conventional stop bar and the other side is clamped down tightly by means of special clips machined in the cylinder at the proper location.

While the equipment was designed for a Duplex Tubular Press, it can be adapted to stereotyping and press equipment of any other make.

After the full-size plate containing the six dealer addresses has been cast and trimmed, it is taken to one of the two special machines designed by Mr. Pettit. The first operation is to slit the plate into sections. The machine used for this operation is shown in Fig. 1. The cylinder upon which the plate is slipped is a duplicate of the regular tubular core. A preliminary cut next to the plate slot is first taken to remove the bolster, then the slide guide is withdrawn and the plate is rotated to bring its newly-cut edge against the stationary guide. The plate may then be cut into sections.

After the six pieces have been cut by the slitter, they are taken to the beveling machine, Fig. 2. Each section is locked on a saddle slide by a suitable clip which is tightened by means of a knurled hand wheel. Two saws, mounted at an angle of 40 deg., bevel both sides of the section in one operation. They are then ready to slip into the press cylinder.

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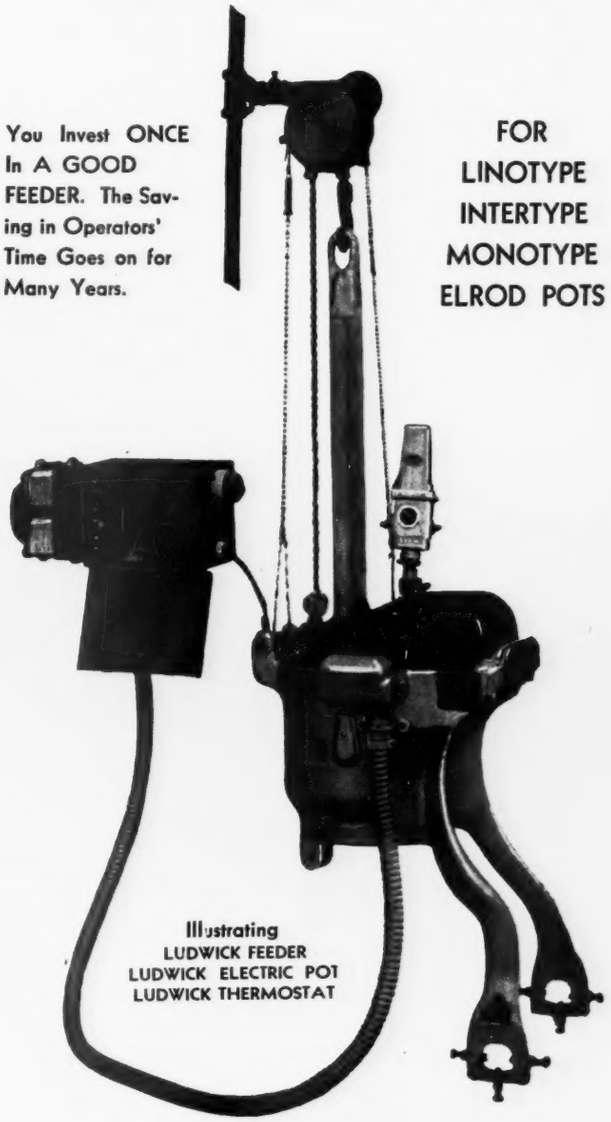

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Easier molding, less time at the scorcher, the first plate as perfect as the second or third. "O.K. for Certifieds," says the relieved publisher.

For dependable stereotyping rely on Certified Mats, made in the U. S. A.

●

CERTIFIED DRY MAT CORPORATION

338 Madison Avenue **New York City**

Certified
DRY MATS

. . Color Problems

(Continued from page 9)

from the basic colors. The amazing total of 1295 shades can be obtained through the use of three colors and black.

Mr. Berckmans acknowledges that the artist preparing illustrative material for newspaper wet printing must be familiar with the limitations of the printing method. Also he must understand how he may obtain the colors to be used in the copy he is preparing. If the artist knows what his limitations are in the use of color he should have no great difficulty and can work accordingly.

To be perfectly honest with our readers, the editor wishes to state that owing to the time limit available in which arrangements could be made, the insert demonstrating a plan for standardized newspaper color printing inks in this issue of *Printing* EQUIPMENT *Engineer* was not printed on a rotary newspaper press under actual newspaper production conditions. The insert was printed on a Miehle Vertical. Due to flat-bed printing and the manner of inking the various forms the colors may appear to be somewhat more brilliant than would be the case had the insert been printed in the customary manner. The insert is only intended to demonstrate the number of shades obtainable through the use of three colors and black. The editor feels this explanation ought to be made so that our readers may take it into consideration.

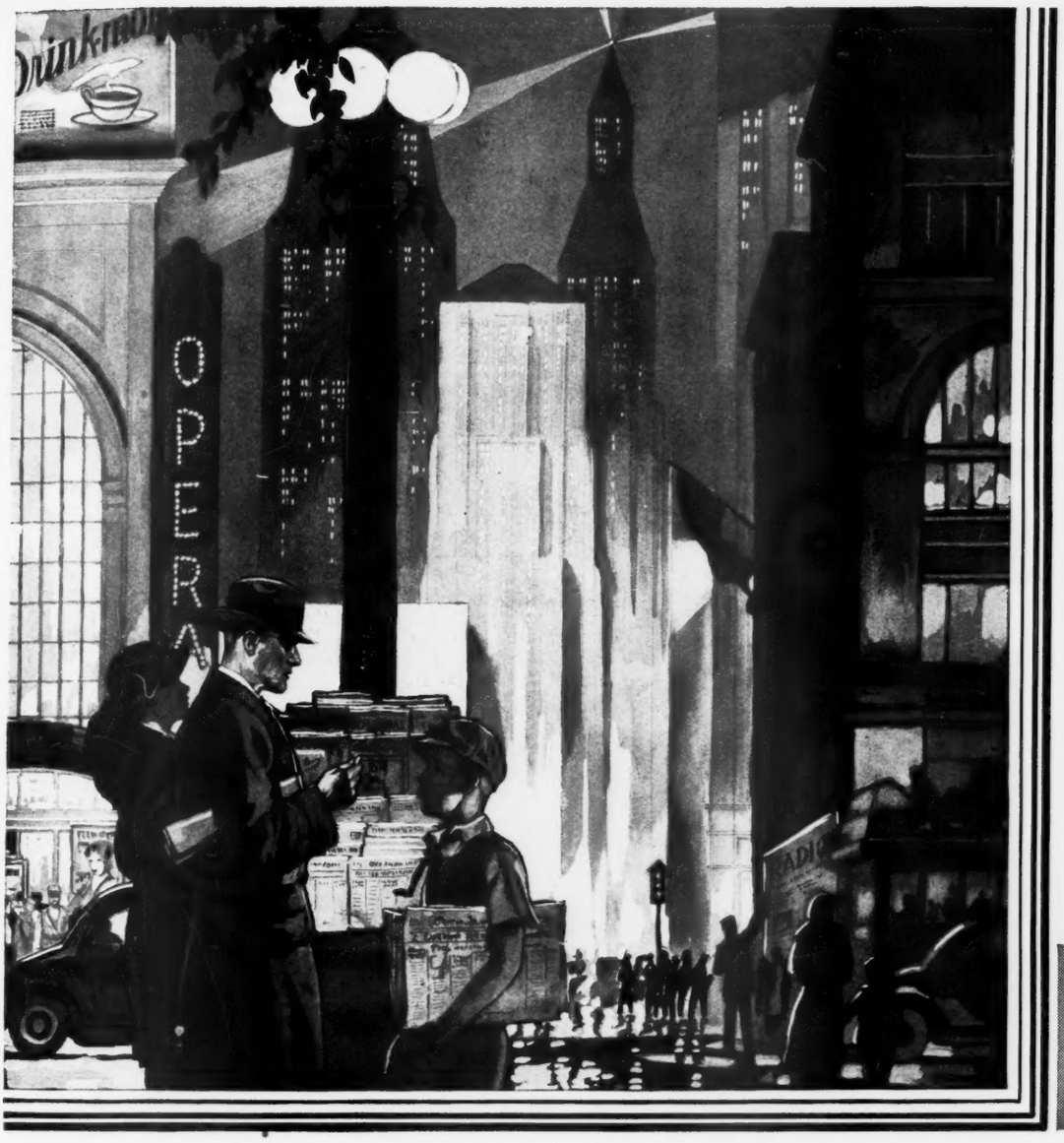
Printing EQUIPMENT *Engineer* is interested in the subject of newspaper color standardization because we believe it will benefit the newspaper publishing industry. In an important question such as this, it is inevitable that more than one plan will be offered. Determination of what is best in color standardization is a function of the Joint Committee. This magazine is providing an opportunity for sponsors to present their plans so that all the parties interested will be able to approach the subject intelligently.

CONSISTENCY

SINCE Government is sponsoring Codes looking to the righteous conduct of business, it is only fair that Government should be consistent with respect to the observance of the ethics stipulated in the Codes by establishing itself as a buyer willing to conform to Code regulations. Also, in view of Government's paternity over Industry and its insistence that business shall not be conducted at less than cost, it should approach the supplier in buying equipment and supplies just as would any other business institution, however small in comparison the other purchaser might be.

According to Secretary James E. Bennet a substantial majority of the members of the National Printing Equipment Association, Inc., are opposed to the Executive Order of June 29 permitting a 15% reduction below the prices filed on bids made to certain public authorities.

Objections to the order permitting a preferred 15% discount in prices to government agencies are illuminating and in our opinion are justified. Some of the protests are as follows: Public authorities should support Codes; the order is against Government plans and the interests of employer and employe; if public authorities obtain lower prices, private purchasers will pay increased costs; in some cases the order would not permit a profit and manufacturers state that they cannot operate without a profit; Government can afford list prices if other consumers can; chiselers will take advantage; the 15% reduction presents an opportunity to indulge in price-cutting. Others stated the proposal is contrary to Code, defeats its purposes and would cause people to lose respect for Codes and the Government in general.



The Printed Word CONVEYS AND RECORDS THE MESSAGE OF THE HOUR

THE dramatic events which are constantly transpiring throughout the world are quickly transmitted to eager readers through the medium of the press. Through this powerful instrument talented editorial writers, as well as masters of fiction and advertising, give vibrant life to words.

Without the scientific development of printing, historical facts would become distorted. Today we read of that which has taken place in the past and receive first-hand information of the happenings of the hour and of the forecasts of the future.

One of the major factors in the recording of words is the transferring of cold type to paper, and the proper ink distribution that makes this possible depends upon the use of good rollers.

Ideal Rollers are serving publications and newspapers throughout the world. They are in use day and night, operating at high speeds, pouring out millions upon millions of clear, legible impressions, carrying new thought, bringing new hope to mankind, ever increasing in intelligence with the passing of time.

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Monotype Mold Blade Starter

By LEON A. LINK*

EVERY monotype operator when starting to cast, has at times experienced the difficulty of getting type to eject from a Monotype Giant Caster mold†. Some operators strike the mold blade bell crank with a pig of metal when starting the cast and others pry it over with a screwdriver. These methods are not satisfactory and are makeshifts at their best.

Allan Randall, one of our monotype operators, has developed a device that is much more satisfactory in every respect. It consists of a lever shown at *1* in the accompanying plan view diagram. When operated, the lever exerts a powerful and fully-controlled force against the bell crank stud *2* to start

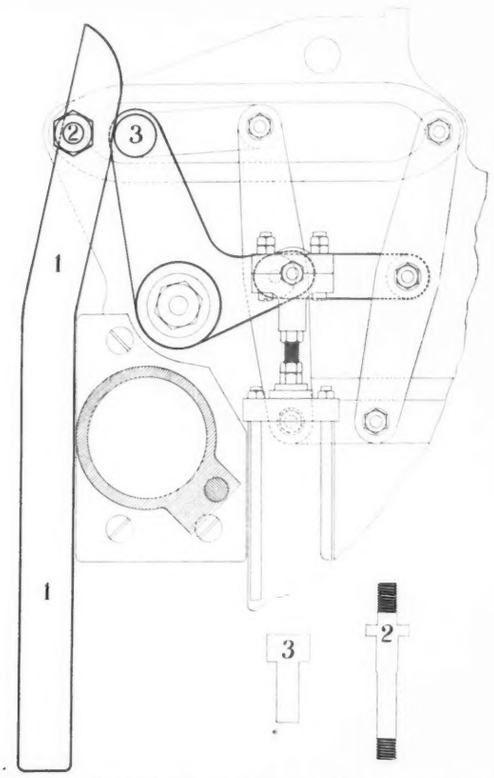


Diagram showing application of Randall mold blade starter which is in use in the monotype department of the Des Moines Register-Tribune *composing room. This diagram was executed by Carl Bloomberg, Jr., assistant to Mr. Randall.*

the mold blade. The device has been in use for several months on two Giant casters in our plant. His assistant, Carl Bloomberg, Jr., has made a drawing which accompanies this article and shows just how it is applied to the machine.

First, we had the plant machinist make a bolt *2*, which is an inch longer than the one that originally came with the machine. It acts as a pivot for the lever *1*. The bolt is long enough to allow for two locknuts on the top and above the lever.

The original pin *3* was replaced with one having a round, solid head 1 in. diam. and 5/8 in. high. This studhead provides a bearing against which the lever *1* works, causing the pressure to make the ejection.

The lever *1* was made from a piece of mild steel 1/4 in. thick

*Superintendent of the Composing Room, Des Moines *Register-Tribune*, Des Moines, Iowa.

†That is, this difficulty is experienced when the mold and its associated parts have not become pre-heated through transmission of the heat from the metal pot to the mold and where it is desirable to start operation as soon as possible.—*Editor.*

and 1¼ in. wide. The lever is 17 in. long and was curved so that it would fit closely about the micrometer wheel stand when not in use. When the operator pushes the lever over to cause the ejection he should be sure that the cross-block has fully opened so that neither it nor the end of the mold blade will be damaged.

A good machinist can make these three parts and it is a simple matter to install them on the machine. It is just another of those things that you would not be without after having used it for a while. The accompanying illustration shows plainly how it is attached to the machine.

Trade Practice Complaint Committee

The plan for handling trade practice complaints in the printing equipment industry and trade has been approved by the division administrator of the National Recovery Administration.

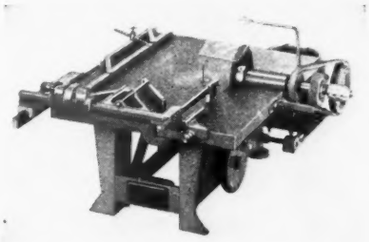
The following six members constitute the committee:

Arthur Bentley, President, Miehle Printing Press & Manufacturing Company, and President of the National Printing Equipment Association, is Chairman of the Code Authority; Thomas R. Jones, President, American Type Founders Sales Corporation, and Vice-President of the National Printing Equipment Association, is Vice-Chairman of the Code Authority; Joseph T. Mackey, Executive Vice-President, Mergenthaler Linotype Company, and Treasurer of the National Printing Equipment Association, is Treasurer of the Code Authority; Calvert B. Cottrell, 3rd, President, C. B. Cottrell & Sons Company; James S. Gilbert, President, Dexter Folder Company, and R. V. Mitchell, President, Harris-Seybold-Potter Company.

Bench Type Saw-Trimmer

A bench-type saw trimmer for use in composing rooms has been announced. The device is equipped with an 18 in. by 22 in. table which carries no slots or grooves. An extension arm on the front of the table adds an extra 5 in. to the top, giving a maximum working area of 23 in. by 22 in. All gauges and attachments can be removed when desired to make the entire table free for work.

A 6-in. circular saw with three trimmer knives runs in a ball bearing elevating arbor. The jig saw mechanism is unique. A saber type blade is used in the jig saw mechanism which is operated by friction drive. The circular saw is lowered until it clears the table top, when the trimmer head contacts the drive pulley and the jig saw starts automatically. The entire saw mechanism is run by one V-type belt and one set of pulleys.



This new saw-trimmer carries a saber type jig saw.

The pica gauge, with 12-point vernier adjustment, has an 80-pica capacity. The work vise holds straight or mitered material. The machine is also equipped with miter gauge, drill chuck, grinder and fence guide.

A ¼ h.p. motor furnishes the power.

Further particulars may be obtained from the Printers' Equipment Mfg. Co., Toledo, Ohio.

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Printing Press Patents Numerous

Web Control, Inking Mechanism, Sheet Handling Means, Signature Delivery and Color Press Claims Allowed

AUGUST-SEPTEMBER

Printed Copies of Patents Are Furnished by the Patent Office at 10 Cents Each. These May Be Obtained by Addressing the Commissioner of Patents, at Washington, D. C.

Bookbinding:

1,973,375. PROCESS OF BOOKBINDING WITHOUT STITCHES. Philip A. Frazier, Oak Park, Ill. Application July 11, 1932. Serial No. 622,005. 4 Claims. (Cl. 281—26.)

4. Those steps in the process of building a book which consist of arranging sheets collected into signatures to either side of a group of separate sheets, of effecting grooves transversely of all the sheets and more deeply thereinto as the top and bottom faces of the arranged sheets and signatures are approached, of placing glue in such grooves and upon the back edges of the center group of sheets and of working the glue between the adjacent back margins of the center sheets.

1,973,632. METHOD OF AND MECHANISM FOR AUTOMATICALLY OPENING CLOSED BOOK SIGNATURES AND THE LIKE. Rudolf Klemm and Walter Geissler, Leipzig-Plagwitz, Germany, assignors to Gebruder Brehmer, Leipzig-Plagwitz, Germany, a firm of Germany. Application February 8, 1933. Serial No. 655,846. In Germany February 11, 1932. 19 Claims. (Cl. 270—53.)

3. Means for opening a closed signature or the like, comprising a plurality of sheet-deflecting members arranged in sequence and laterally of the closed signature, the number of operative members in the sequence being at least equal to the number of leaves to be deflected from the plane in which the fold of the signature lies, and means for progressing the signature past the sequence of sheet-deflecting members.

Composing Machinery:

1,970,566. SYSTEM AND APPARATUS FOR COMPOSING MACHINES. Edward E. Kleinschmidt, Chicago, Ill., assignor by mesne assignments to Teletypesetter Corporation, Chicago, Ill., a corporation of Delaware. Application June 5, 1929. Serial No. 368,641. 47 Claims. (Cl. 199—18.)

1. In combination, a composing machine, a control unit mechanically attached to the composing machine and adapted to initiate all the functions of the composing machine, a transmitting unit mechanically independent of the control unit but electrically connected thereto, means included in the transmitting unit to transmit electrical impulses to the control unit to selectively operate the composing machine, and means attached to the composing machine to control the transmitting unit.

1,970,567. COMPOSING MACHINE. Louis M. Potts, Chicago, Ill., assignor, by mesne assignments, to Teletypesetter Corporation, Chicago, Ill., a corporation of Delaware. Application June 5, 1929. Serial No. 368,642. Renewed January 2, 1934. 80 Claims. (Cl. 199—29.)

1. In combination, a series of permutation members, a series of elements selected by the setting of the members, means to set a plurality of the members, a common actuator for the selected elements, and means controlled by certain settings of the members and operated by the actuator to set another of the members.

1,971,399. SLUG CASTING MACHINE. Frank C. Frolander, Elizabeth, N. J., assignor to Mergenthaler Linotype Company, a corporation of New York. Application December 21, 1932. Serial No. 648,199. 39 Claims. (Cl. 199—47.)

1. In a slug-casting machine, the combination of a transporter for presenting a composed line to the mold, the main drive shaft for the machine, and means actuated from the shaft for causing the transporter to present the line to the mold a plurality of times to cast a corresponding plurality of duplicate slugs, the means being adjustable to vary the number of slugs cast from each line.

1,971,400. SLUG CASTING MACHINE. Frank C. Frolander, Elizabeth, N. J., assignor To Mergenthaler Linotype Company, a corporation of New York. Application February 23, 1933. Serial No. 658,077. 46 Claims. (Cl. 199—50.)

1. In a slug-casting machine, the combination of a pair of line-clamping jaws, means for moving one of the jaws into contact with a composed line, means independent of the line for moving the jaw outwardly a limited distance from its line contacting position to permit the line to be expanded by spacebands to a corresponding extent, and means for nolding the jaw in its outwardly moved position during the expansion of the line.

1,971,424. SLUG CASTING MACHINE. Luther E. Morrison, New York, N. Y., and Frank C. Frolander, Elizabetn, N. J., assignors to Mergenthaler Linotype Company, a corporation of New York. Application September 16, 1933. Serial No. 689,710. 34 Claims. (Cl. 199—50.)

1. In a slug-casting machine, the combination of a pair of line-clamping jaws, one of the jaws being adjustable toward the other to accommodate lines of different lengths, means for moving one of the jaws inwardly from its line-receiving position into contact with a composed line, the jaw being thereafter movable outwardly a limited distance from its line contacting position, and means controlled by the set position of the adjustable jaw for determining the extent of such outward movement for lines of a given length.

1,972,674. LUG MATRIX FOR TYPE METAL. Robert P. Barennes, Bordeaux, France. Application April 25, 1931. Serial No. 532,908. In France May 5, 1930. 1 Claim. (Cl. 199 — 66.)

In matrices for the production of type bars, a matrix having a recess in the casting surface of greater depth than the corresponding depth of the recesses in the similar letter matrices whereby a projection over type high may be formed to serve as a guide at any desired position in the type bar or at the end.

1,972,837. METAL PUMP FOR TYPOGRAPHICAL MACHINES. Ransom H. Turner, Little Neck, Long Island, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application June 14, 1933. Serial No. 675,848. In Germany June 15, 1932. 16 Claims. (Cl. 22 — 70.)

1. A casting pump for typographical machines having at least one metal injecting plunger, and a cam for controlling the operation of the pump, pump actuating means connected to the pump and carrying a plurality of rollers running simultaneously on the cam, and stops operative to hold actuating means in retracted position and to effect full release of the total available actuating force of the actuating means and thereby start the pumping operation of the pump when the rearmost roller is released by the cam.

1,973,586. TYPOGRAPHICAL MACHINE. Ransom H. Turner, Little Neck, N. Y., assignor to Intertype Corporation, Brooklyn, N. Y., a corporation of New York. Application August 25, 1933. Serial No. 686,785. In Germany March 2, 1933. 13 Claims. (Cl. 199 — 50.)

1. In a typographical machine having a matrix line receiving vice comprising jaws at least one of which jaws is movable toward the other jaw, and a justifying device for expanding spacebands in the line, actuating means operative by the main cam shaft of the machine to close the movable jaw against a matrix line, relieve the movable jaw by interrupting closing action thereof and thereby leaving the line free to permit justification unopposed by the jaw, and subsequently to move the movable jaw against the line to confine the latter during the casting operation.

Offset-Lithographing:

1,972,470. OFFSET PRINTING PRESS. Howard M. Barber, Pawcatuck, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., a corporation of Delaware. Application May 17, 1933. Serial No. 671,451. 63 Claims. (Cl. 101 — 143.)

1. In an offset printing press, coacting design, transfer and impression cylinders, their drive, and means for independently driving the impression cylinder.

Plate Making:

1,971,116. MEANS FOR PROTECTING RECIPROCATING TABLES OF MATRIX-MAKING MACHINES. Edward J. Mohan, Forest Hills, N. Y., assignor to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, receiver. Application December 21, 1931. Serial No. 582,209. 2 Claims. (Cl. 101 — 12.)

1. In a matrix-making machine including a reciprocating table and a cooperating pressure roller, the table being formed of metal of given hardness and having core holes extending longitudinally therethrough, guard plates formed of metal harder than the table and secured to the opposed ends thereof, the guard plates being constructed and arranged to protect the ends of the table and terminal walls of the core holes and to form a closure for the core holes.

1,971,044. PRINTING PLATE. Robert R. Lewis, Baldwin, N. Y., assignor to Vulcan Proofing Company, New York, N. Y., a corporation of New York. Application February 15, 1933. Serial No. 656,772. 8 Claims. (Cl. 101 — 401.1.)

7. A method of forming a printing plate, which consists in spreading upon supporting material a bonding which has a major proportion of rubber, then spreading upon the bonding a surface layer which contains a flexible and oil-resistant polymerized substance which is derived from a halogenized unsaturated hydrocarbon in the presence of sulphur, and then storing the device until the surface layer has been anchored to the supporting material.

1,972,174. MULTIPLE STEREOTYPE CASTING MACHINE. Isidor Tornberg, Plainfield, N. J., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application June 2, 1932. Serial No. 614,874. 6 Claims. (Cl. 22 — 2.)

1. In a multiple stereotype plate-casting machine, the combination with a furnace, a melting pot supported thereby, and a pump supported by the furnace and extending down into the melting pot and having a spout projecting out of the furnace, of a series of molds supported outside the furnace, a motor for operating the pump, the molds each consisting of two parts, one of which is adapted to be moved to open and close the mold, contacts on the mold in series with the circuit for supplying power to the motor, and means whereby when a mold in casting position is closed the circuit will be completed and the motor will operate to fill that mold with metal.

1,973,548. POSITIVELY MOLDED MATRIX. Hylton Swan, Upper Montclair, and Sigfried Higgins, Verona, N. J., assignors to Bakelite Corporation, New York, N. Y., a corporation of Delaware. Application July 2, 1929. Serial No. 375,578. 5 Claims. (Cl. 41 — 25.)

1. Matrix suitable for printing plates comprising a phenolic resinoid composition molded into negative printing areas and having incorporated therewith a filler of inert nature, the matrix being characterized by a substantial uniformity of density at the periphery and at the interior portions whereby it is adapted for the molding of printing plates free from high edges and uneveness of printing surface.

Printing Presses:

1,970,717. WEB CONTROL FOR PRINTING PRESSES. Isidor Tornberg, Plainfield, N. J., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 23, 1928. Serial No. 264,248. Renewed May 5, 1933. 9 Claims. (Cl. 242 — 58.)

3. In a printing press, the combination with means for rotatably supporting a web supply roll, a shaft, means for running the shaft from the press, a friction device for engaging the surface of the roll, means for connecting the shaft with the friction device to run the latter backward to apply tension to the running web, a motor, and means for connecting the motor with the shaft for running the friction device forward for threading in.

1,970,929. MULTIPLE UNIT PRINTING PRESS. Henry A. Wise Wood, New York, N. Y., assignor to The Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application January 29, 1931. Serial No. 512,029. Renewed January 11, 1934. 11 Claims. (Cl. 270 — 5.)

1. In a printing press, a perfecting press unit, a multiple-impression unit, the units being adapted to print upon a common web and being disposed in superposed relation one to the other, and a common driving means for the units and disposed between the units.

1,970,931. FOLDING AND COLLECTING MECHANISM. Curtis S. Crafts, Oak Park, Ill., assignor to Goss Printing Press Company, a corporation of Illinois. Application May 6, 1930. Serial No. 450,132. 14 Claims. (Cl. 270 — 6.)

1. A folding mechanism for use with high-speed rotary printing presses including in combination a folding cylinder having holding means to take the head of a sheet or web, a collecting cylinder having an odd number of holding means greater than one, and means for actuating each of the holding means on the collecting cylinder once each revolution or less than once each revolution.

Continued on page 34

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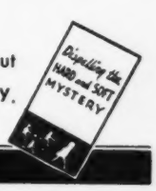

Assembler Clutch with Adjustable Tension

By L. W. WILLIS*

ASIDE from serious and costly delay to production nothing is more annoying to an operator than faulty action of matrices at the point of assembly. The positive assembler was devised to assist the matrices to flow into the line smoothly by coordinating the influence of the delivery belt and chute spring at the critical point which is the point of turning and entry of the matrices before the star wheel. At a later date, the design of the star wheel friction clutch was changed by introducing the lubricated clutch disk. This is a disk with an eccentric grease-packed groove in its face adjacent to the drive gear.

More recently, after prolonged periods of test, the lubricated disk idea has been further refined in point of mechanical design and a new feature which permits quick adjustment of the spring tension has been added.

Illustrated in the sectional view, an extended sleeve portion of the friction disk is tapped to screw on the threaded shaft until it seats squarely against a shoulder. The faces of the disk are trued after this assembly operation so as to insure accurate face-wise engagement between the vertical contacting faces of the disk and the drive gear. The spring retaining collar engages flats provided on the extended sleeve of the disk in order that it will turn positively with the disk. The face of the collar seats against the outer face of the drive gear to provide additional friction surface. The tension spring bears at one end against a closed wall of the retaining collar, this arrangement overcoming the tendency of the spring to "dig-in" due to bearing directly on the face of the drive gear.

The knurled adjusting nut permits convenient and quick alteration of the clutch tension by compression or expansion of the tension spring when the nut is turned. To avoid excessive backing-off of the adjusting nut, a nut tapped only part way through is run on the end of the shaft until it jams tightly. The adjusting nut located at the back of the assembler is easily accessible by reaching through the opening in the face plate just above the assembling elevator.

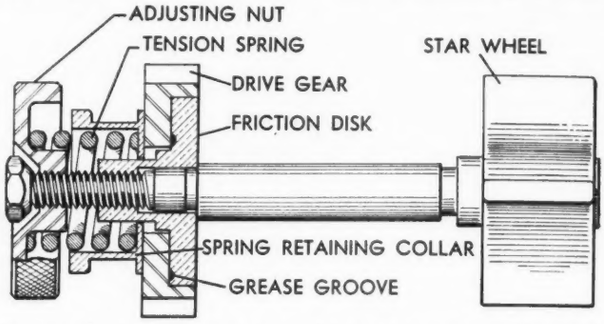

Diagram showing component parts of Intertype's new assembler clutch which is fitted with a means for regulating the star wheel spring tension.

Since a relatively large area of friction surface is provided in this new design (two surfaces contacting respectively with the inner and outer faces of the drive gear) the tension for which the spring is set can be much less in strength than formerly. This results in a sensitive and smooth acting clutch and eliminates any chafing and sticking troubles.

Once packed, the eccentrically arranged grease groove (vaseline is probably the best lubricant to use at this point) provides a free and light working clutch.

*Patent and Research Engineer, Intertype Corporation, Brooklyn, N. Y.

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. . Ornamentation

(Continued from page 12)

inspirations. While discussing the source of ideas used, Mr. Berry pointed to a detailed pattern in his living room rug as the source of an idea for the Egyptian scarab printed with this article. The motif for the urn design which is used to bleed off the preceding page of this article was obtained from a large vase standing on the porch of Mr. Berry's home.

"It is a comparatively easy matter to adapt some object for the purpose," said Mr. Berry. "The object which has been selected may then be shown standing upon a tile flooring, as in the case of the urn. Border and rule strip material are easily adaptable for the purpose, since cutting the various pieces to form the design is a repetitive process which requires only the effort at simple mathematical computation."

Festoonery of this sort may be cut into shape on the Rouse Mitreing Machine.

While Mr. Berry does not in all cases employ graph paper for laying out the design, he suggested its use for those printers who might want to lay out patterns to conserve time and effort. The graph paper may also be used in cases where the design is to be drawn by one person and given to a Rouse mitreing machine operator to make from strip material. It is a simple matter to draw the design within the limits of nonpareils and picas. After the design has been drawn upon the graph paper, the dimensions as expressed by the ruled lines are followed easily.

The Rouse rotary mitreing machine upon which Mr. Berry does this work is equipped with a 90 deg. included angle cutter. Each end of a piece of material is thus cut at an angle of 45 deg. Since the machine is equipped with a nonpareil and pica scale having a total capacity of 144 picas, no difficulty will be presented in the making of patterns of any length or height. At the *Dispatch*, Chief Machinist Jack Lybarger adjusts the cutter so that it will cut into the rule or border to within 0.005 in. or 0.010 in. of the side which rests against the gauge. When only one or two pieces of a measure are to be trimmed, each piece of rule stock is lifted out and separated by the operator after each cut. If a number of these short-measure pieces are required, the gauge and the work are moved progressively to the left as each cut is made, after which the pieces are separated by the operator.

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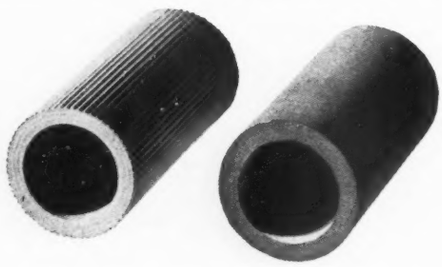

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. . Patents

(Continued from page 31)

1,971,081. INKING MECHANISM FOR PRINTING MACHINES. Sam Newton, Altrincham, and Fred Spence, Sale, England, assignors to Linotype and Machinery Limited, London, England, a limited-liability company of Great Britain. Application October 10, 1931. Serial No. 567,998. In Great Britain October 16, 1930. 4 Claims. (Cl. 101 — 356.)

1. In Inking mechanism for printing machines, the combination of a set of ink distributor rollers rotating always in the same direction, a set of form inking rollers rotating alternately in opposite directions, an ink distributor drum rotating always in the same direction and adapted to receive ink from the ink distributor rollers and transfer ink to the form-inking rollers, and a ductor roller in constant rolling contact with the drum, two rollers of the form-inking set being so located that the ductor roller makes contact with them in alternation during the rotation of the form-inking roller set in respectively opposite directions.

1,971,771. PRINTING PRESS. Curtis S. Crafts, Oak Park, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application January 5, 1933. Serial No. 650,224. 8 Claims. (Cl. 101 — 225.)

1. In a printing press, the combination of a plurality of web-fed printing units, means for associating the printed webs from the units, a web supply means for each of the units, web threading means for each unit operable independently of the units and means for individually operating the threading means whereby wasting of the webs is avoided.

1,971,896. SHEET HANDLING MECHANISM FOR PRINTING PRESSES. Robert S. Barber, New London, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I., a corporation of Delaware. Application November 2, 1932. Serial No. 640,761. 15 Claims. (Cl. 271 — 79.)

1. An endless sheet carrier comprising, side chains, oppositely disposed coacting grippers mounted on the chains, and means for simultaneously adjusting the chains laterally in parallelism toward and away from each other or for adjusting one of the chains toward and away from the other chain, for permitting the grippers to handle sheets of different widths.

1,971,897. SIGNATURE DELIVERY MECHANISM FOR PRINTING PRESSES. Howard M. Barber, Pawcatuck, Conn., assignor to C. B. Cottrell & Sons Company, Westerly, R. I. a corporation of Delaware. Application November 21, 1932. Serial No. 643,597. 5 Claims. (Cl. 271 — 87.)

1. In a packer delivery, a two-way packer box provided with uprising sides having oppositely disposed signature guides, reciprocating packer fingers operable to pack signatures alternately in opposite directions and signature pack retaining means operable to retain the packs against displacement as the packer fingers are retracted, the means comprising pairs of oppositely disposed coacting devices located respectively to the front and rear of the signature guides and movable into and out of the signature path.

1,971,962. SHEET FEEDING DEVICE. Ruel A. Jones, Covington, Ky., assignor to R. A. Jones & Co., Incorporated, Covington, Ky., a corporation of Kentucky. Application July 5. 1933. Serial No. 679,071. 2 Claims. (Cl. 271 — 41.)

1. In a sheet feeding device for operating upon the lowermost sheet of a stack or pile for successively extracting the sheets individually, comprising, rotary sheet feeding means for frictional engagement with the lowermost sheet of the pile within a rack to advance and extract the lowermost sheet therefrom, a continuously rotating spindle removably carrying a needle, the needle tapering toward one end to provide an extremely fine point for penetrating several of the lower sheets at the rear end for withholding against extraction, the sheets not directly operated upon by the sheet feeding means, a journal bracket journalling the spindle adjustable for changing the angle of the needle relative to the plane of the sheets, and gearing for transmitting the spindle journalled on the bracket as a unit therewith.

1,972,460. DELIVERY MECHANISM FOR USE IN PRINTING MACHINES. Cecil George Quick, Eltham, London, and Charles William Marshall, Brixton, London, England, assignors to R. Hoe & Co., Inc., New York, N. Y., a corporation of New York; Irving Trust Company, receiver. Application October 13, 1930. Serial No. 488,394. In Great Britain May 22, 1930. 7 Claims. (Cl. 271 — 80.)

1. In delivery mechanism for printing machines having a fan wheel delivery .the combination of a fan wheel, a conveyor assembly coactable with the fan wheel for receiving products from same, the conveyor assembly being adjustable relatively to the fan wheel for receiving products of various thicknesses, and means including self-locking instrumentalities for adjusting the conveyor assembly towards and away from the fan wheel.

1,972,494. COLOR PRINTING PRESS. Oscar C. Roesen, Brooklyn, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 5, 1931. Serial No. 520,301. Renewed January 30, 1934. 12 Claims. (Cl. 270 — 5.)

1. In a web press, a multi-color printing unit comprising a plurality of plate cylinders. means for leading a plurality of web strips side by side through the unit, and means between each pair of cylinders for leading out any one of the strips from the unit.

1,972,506. PRINTING PRESS. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application February 20, 1931. Serial No. 517,139. Renewed July 28, 1933. 10 Claims. (Cl. 270 — 5.)

1. In a web press, a folder, a plurality of single color press units alined therewith, means for feeding webs from the units to the folder, a pair of multi-color press units disposed substantially at right angles to the single color units, and means for leading a web through the multi-color units and assembling the web in any desired order with the webs from the single color units to be fed therewith to the folder.

1,972,507. MULTICOLOR PRINTING PRESS. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application March 5, 1931. Serial No. 520,293. Renewed January 30, 1934. 5 Claims. (Cl. 270 — 5.)

1. A web printing press comprising a single color press unit, a pair of multi-color press units, means for guiding a web through the single color press unit and thence through one of the multi-color units and through the other multi-color unit in reverse direction, means for slitting the web into a plurality of strips between the two multi-color units, means for diverting one of the strips from the second multi-color unit, and means for assembling all of the strips in superposed relation.

1,972,676. DEVICE FOR AUTOMATICALLY REGULATING THE TENSION OF THE WEB IN ROTARY PRINTING MACHINES. Hans Bolza, Wurzburg, Germany, assignor to the firm Schnellpressenfabrik Koenig & Bauer Aktiengesellschaft, Wurzburg, Germany, Application January 29, 1932. Serial No. 589,752. 19 Claims. (Cl. 242 — 75.)

17. In combination, a supply roll, a belt engaging a substantial part of the periphery of the roll, an expansible pulley for driving the belt, electrically operated means controlled by the tension of the material passing off the roll for varying the diameter of the pulley, and means for causing the changes in diameter of the pulley to take place by spaced increments.

1,972,840. CYLINDER BEARING FOR PRINTING MACHINES. Albert J. Graf, Westfield, N. J., assignor to Irving Trust Company, receiver for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application April 22, 1932. Serial No. 606,820. 5 Claims. (Cl. 101 — 247.)

1. The combination with a printing machine including a frame having bearing apertures formed therein and coacting printing cylinders operably supported in the frame and having bearing shafts, of anti-friction bearings rotatably supporting one of the printing cylinders, each anti-friction bearing including an outer ring operably received within a bearing aper-

ture and having inner and outer peripheries arranged eccentric to each other, an inner ring having concentric inner and outer peripheries, the inner periphery engaging a bearing shaft, anti-friction members operably positioned between the inner and outer rings, and means for rotating the outer ring as an operative component of the printing machine to thereby move the printing cylinder transversely to adjust it relative to its coacting printing cylinder.

1,973,034. WEB PRINTING MACHINE. Harry V. Ball, Concord, Mass., assignor to Irving Trust Company, receiver in equity for R. Hoe & Co., Inc., New York, N. Y., a corporation of New York. Application June 23, 1933. Serial No. 677,321. 8 Claims. (Cl. 270—5.)

1. In a web printing machine, the combination of a plurality of units in a line, each unit including a first printing couple and a perfecting printing couple, folders in the line of units, and positioned to divide the line into separate cooperable groups of units, printing units disposed at right angles to the line of units, each of the angularly disposed units including in superposed relation a perfecting printing couple and a plurality of additional printing couples, a source of web supply located beneath the units, means positioned above the line of units for associating the webs of the angularly disposed units with the webs of the line units, and common means for conveying the associated webs above the line units in either direction or both directions along the line to the selected folder or folders.

1,973,058. ROTARY PRINTING MACHINE. Paul Gangler, Esslingen, Germany, assignor to the firm Fr. Hesser, Maschinenfabrik-Aktiengesellschaft, Stuttgart-Cannstatt, Germany. Application April 4, 1932. Serial No. 603,006. In Germany May 11, 1931. 5 Claims. (Cl. 101—248.)

1. In a rotary printing press, comprising a form cylinder, a tubular shaft carrying the same and a driving member loosely mounted on the shaft, the combination of a traction member extending through the tubular shaft, a coupling member in line with the shaft secured to the traction member adjacent one end thereof and connecting the tubular shaft and driving member to each other, means adjacent the other end of the traction member to move the latter axially, and means including slotted sleeves mounted on the traction member and tubular shaft respectively, the slots in the sleeves crossing one another and being engaged by the coupling member to move the coupling member to peripherally adjust the tubular shaft and form cylinder.

1,973,363. SPEED CONTROLLING DEVICE FOR WEB ROLLS. Henry A. Wise Wood, New York, N. Y., assignor to Wood Newspaper Machinery Corporation, New York, N. Y., a corporation of Virginia. Application August 26, 1930. Serial No. 477,943. 8 Claims. (Cl 242—58.)

7. The combination with a printing press and a rotatable magazine reel adapted to carry a plurality of web rolls, one of which feeds a web to the printing press, of driving means connected with the central axis of another web roll for speeding up the other web roll preparatory to splicing its leading end to the running web, the driving means being controlled by means engaging the surface of the other web roll.

1,973,464. FLAT BED WEB PRINTING PRESS. Paul F. Cox, Chicago, Ill., assignor to The Goss Printing Press Company, Chicago, Ill., a corporation of Illinois. Application May 22, 1933. Serial No. 672,303. 9 Claims. (Cl. 101—256.)

1. In a bed and cylinder web printing press having a cylinder and bed, a bed rack, a cylinder gear meshing with the bed rack, guides for directing a web between the cylinder and bed, and means for throwing impression on and off; an auxiliary rack extending lengthwise of and vertically movable relative to the rack and to and from the cylinder and engaging the cylinder gear and means for keeping the auxiliary rack in mesh with the gear, whereby the cylinder is kept in accurate mesh relation with the bed rack when the impression is thrown off.

Miscellaneous:

1,971,439. PRINTER'S BLANKET. Frederick George Arnold, Chicago, Ill., assignor to Rapid Roller Company, Chicago, Ill., a corporation of Illinois. Application June 8, 1933. Serial No. 674,833. 7 Claims. (Cl. 154—54.5.)

1. A printer's blanket comprising a resilient body portion and a smooth surface coating of a flexible and resilient halogenated rubber composition on a face of the body portion.

1,971,749. TYPE CASE. Edward P. Hamilton, Two Rivers, Wis., assignor to Hamilton Manufacturing Company, Two Rivers, Wis., a corporation of Wisconsin. Application December 11, 1931. Serial No. 580,245. 13 Claims. (Cl. 276—45.)

1. In a type case, the combination of a cabinet; a drawer slidable in the cabinet; a plurality of parallel trays in the drawer of each for holding a column of type blocks, the trays having their front walls projected beyond the front of the drawer; a slot in the bottom of each tray longitudinally thereof; a coil spring anchored below each tray spaced rearwardly from the front wall thereof and extensible in the slot; and a follower in each tray and secured to the spring, whereby the follower presses upon the column of type blocks in each tray and advances the blocks toward the front of the drawer and beyond the front as blocks are removed from a column.

1,972,173. APPARATUS FOR TYING NEWSPAPER BUNDLES AND THE LIKE. Ivan H. Spoor, Berwyn, and Ray F. Le Tourneau, Chicago, Ill., assignors to The Gerrard Company, Inc., Chicago, Ill., a corporation of Delaware. Application May 10, 1929. Serial No. 361,856. 8 Claims. (Cl. 100—31.)

1. Bundling apparatus, comprising a table, an upright support carried by the table, an upright rod slidable up and down in vertically spaced guideways associated with the support, a wire-tying machine secured to the rod for movement therewith, and means for substantially counter-balancing the machine and rod.

1,972,547. EMBOSSING MACHINE. James J. Bosdan, Newton, Mass. Application March 10, 1933. Serial No. 660,241. 6 Claims. (Cl. 197—6.2.)

1. An embossing machine comprising in combination a longitudinally movable carriage, a vertically disposed plateholder, a plurality of pairs of cooperating dies and matrices disposed on the carriage and arranged on opposite sides of the plate holder, actuators disposed for cooperation with a selected pair of dies and matrices, means for moving the carriage longitudinally to bring a selected pair of dies and matrices into register with the actuators, means for moving the actuators transversely into cooperation with such selected pair of dies and matrices, and a unitary manually-operable member constructed and arranged directly to actuate both of the means.

1,972,902. APPARATUS FOR HANDLING STRIP MATERIAL. Adolph Potdevin, Garden City, N. Y., assignor to Potdevin Machine Company, Brooklyn, N. Y., a corporation of New York. Application January 8, 1932. Serial No. 585,518. 5 Claims. (Cl. 271—2.1.)

1. In a machine, the combination of feed rollers for continuously advancing a flexible strip, pinch rolls for retarding the advance of the strip to produce a slack therein, web engaging means, and means for moving the web engaging means into and out of engagement with the slack portion of the material to maintain tension in that portion of the material lying between the web engaging means and the feed rollers.

1,972,903. APPARATUS FOR HANDLING STRIP MATERIAL. Adolph Potdevin, Garden City, N. Y., assignor to Potdevin Machine Company, Brooklyn, N. Y., a corporation of New York. Application January 8, 1932. Serial No. 585,520. 6 Claims. (Cl. 271—2.1.)

1. In a machine, the combination of feed rollers for advancing a flexible strip or web, pinch rolls in the path of the material, and a pair of rolls intermediate the feed rollers and pinch rolls and lying in the path of the advancing web and traveling at a higher peripheral speed than the feed rollers and pinch rolls, to maintain tension in that portion of the web extending from the feed rolls to the intermediate rolls. The intermediate rolls cooperating with the pinch rolls to produce a slack in that portion of the web extending from the intermediate rolls to the pinch rolls.

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☐ *Catalog*—Illustrating and describing automatic and two-color automatic printing presses and the improved mechanical features. Sixteen pages and cover.

☐ *Signal*—Elaborate showing of a new type face in light, medium and black, with examples showing how it should be used.

☐ *New Precision Standards That Meet Mounting Publishing Costs*—Bulletin fully explaining how new economic conditions and rising costs may be met with high-speed anti-friction newspaper presses. This is No. 1 of a series of six bulletins dealing with high-speed newspaper presses.

☐ *Starch-Filled Book Cloth*—By M. S. Kantrowitz, Technical Director; F. R. Blaylock, Research Associate, and G. G. Groome, Jr. Chemist, U. S. Government Printing Office. Technical Bulletin No. 21. Based on cooperative research conducted by the Employing Bookbinders of America and the Division of Tests and Technical Control, U. S. Government Printing Office.

☐ *Saw-Trimmer Bulletin*—Illustrates and describes a new saw, including jig saw attachments for composing room use.

Printing Equipment Engineer,
1370 Ontario St., Cleveland, Ohio.

Gentlemen: Please send the literature checked above without obligation.

Name of Company_____

Attention of_____

Position_____ **Dept.**_____

Street Address_____

City_____ **State**_____

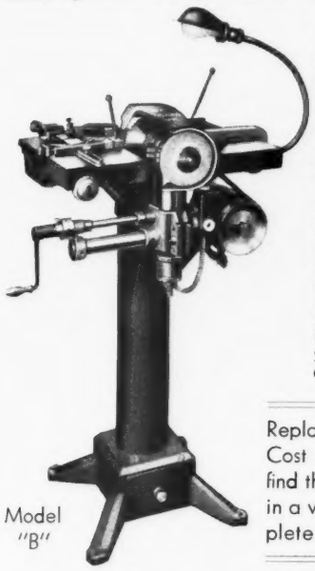
Barker to "Star-Times"

Earl H. Barker, who has been composing room superintendent of the Dayton (O.) Daily *News*, has been appointed to a similar position with the St. Louis *Star-Times*. On Monday evening, Sept. 17, fifteen *News* department heads paid their respects to Mr. Barker at a dinner held in the Miami hotel, Dayton. He was presented a leather zipper bag and fitted case.

LINOTYPE-INTERTYPE MOTOR PINIONS
Complete Stock for All Motor Drive, Obsolete Drive, etc.
Any Kind of Pinions Made Per Sample
WILLIAM REID & CO.
537 SO. LA SALLE STREET **CHICAGO, ILLINOIS**

COST CUTTER SAWS REALLY CUT COSTS

The Model "B" Cost Cutter Saw is an all-purpose saw trimmer. It gives any plant the utmost in efficiency. It saws, trims, makes outside and inside mortises and can be equipped for beveling, rabbeting, surfacing and other operations. Here are its points of superiority:



Model "B"

Mechanical method of grinding and setting trimmer knives.
Removable and adjustable saw heads.
Ball-bearing saw arbors.
Self-aligning sliding tables.
Positive, rapid work-holding clamp.
Easily read pica gauge.
Rapid end gauge.
Ball thrust point gauge.
Powerful, noiseless V-belt drive.
Adjustable motor brackets.
Quick adjustment of belts.
Simplified mitering attachments.
Full provision for taking up wear.
Handy starting switches.
Flexible lighting fixture.
Guarded emery wheels.
Guarded saw blades.
Roomy tool drawers.
Simple adjustments.
Cup oiling.

Replace that old saw with a Nelson Cost Cutter Model "B". You will find that this saw really pays for itself in a very short time. Write for complete information and latest prices.

C. B. NELSON & COMPANY
727 SOUTH DEARBORN STREET, CHICAGO, ILL.

Geo. B. Drach Passes On

George B. Drach, well-known superintendent of the Jersey City Printing Co., passed away Wednesday, September 12, after an illness of several weeks. He was 57 years of age.

Book On Matrix Information

"Useful Matrix Information," a seventy-two-page book just issued by the Mergenthaler Linotype Company, explains the function of teeth combinations on matrices, presents several teeth combination charts, and tells how to safeguard the teeth.

It shows and explains the differences between old style, modern and modernized figures, and discusses universal leaders, newspaper leaders, and the point system.

A long list of face identification numbers and names is included, as well as twenty-four different practical font schemes.

Some of the other subjects referred to in the book are foreign language faces, advertising figures, ruled form matrices, reference characters, political party emblems, ballot squares and circles, fraternal emblems, proprietary symbols, logotypes, matrix slides and slide blocks.

Copies of the book may be had on request from any Linotype agency.

When Writing to Advertisers Tell Them
You Saw It In
Printing EQUIPMENT *Engineer*

For pictures
with SNAP and CONTRAST!

MORLEY MATS

They bring out details *exactly* and produce stereos that please pressmen; editors; publishers; readers!

Mill-conditioned to give just the required shrink; deep, sharp mould with minimum pressure; quick scorching; easy release without use of oil or powder.

Get acquainted with Morley Mats . . . a word from you will bring samples

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Manufacturing Company
PORTSMOUTH, NEW HAMPSHIRE
New York Office: 46 East 11th Street

There's No Money in DROSS!

No one ever squeezed a profit out of a dross drum. Actually, you are money ahead if your dross is worthless. How can that be? Read the booklet "Metal—A Study in Operating Economy." Find out where your money goes—and how to save it.

CLIP HERE FOR FREE BOOKLET

MONOMELT CO., PE-10
1653 Polk St., N. E.,
Minneapolis, Minn.

Kindly send us your booklet "Metal—A Study in Operating Economy." We are interested in reducing metal costs.

Firm_____
Individual_____
Address_____

New Bench Model

Hacker Block Leveller No. 3

Give Plates A Chance

A good plate may give trouble if badly mounted. Every plate does better if accurately mounted.

A plate cannot be printed unless it is type-high—not about type-high but really type-high within one or two thousandths.

Plates inaccurately mounted must necessarily be subjected to considerable makeready.

Here is a new precision planer of such moderate price as to be within the reach of printers striving to reduce makeready.

Send for catalog.

●

HACKER MANUFACTURING CO.

320 SOUTH HONORE STREET CHICAGO

Silk Screen Process Press

Selectasine Patents Company, 558 Sacramento Street, San Francisco, Calif., has announced the Selectasine stencil process which is adapted to the use of oil, paints, lacquers, enamels, inks, dyes and water colors for the production of window displays, posters, decalcomania and other specialty decorations of a good display nature adapted to the silk screen method of printing.

General specifications of the Selectasine process presses are as follows: Nodel No. 3 has a maximum printing service of 22 in. by 31 in.; the overall length with feed board extension is 8 ft. 2 in.; approx. weight, 4500 lbs.; variable speed 2 h.p. motor is furnished to operate the press at printing speeds up to 2200 i.p.h.

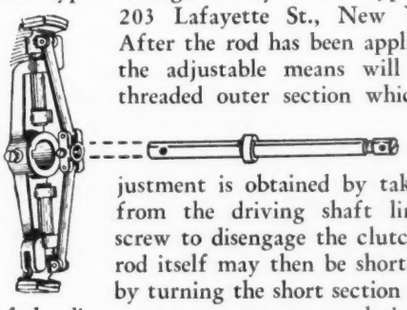
Model No. 5 press has a maximum printing area of 32 in. by 35 in.; overall length of feed board extension is 11 ft.; approx. weight, 5500 lbs.; 3 h.p. variable speed motor is furnished to drive the press; speeds up to 2000 i.p.h. may be obtained.

It is said that material may be handled in the press which include papers as light as 20-lb. bond, cardboards up to 120 point, sized cloth, buckram, light metal, decalcomania paper, and many other kinds of sheet material without changing adjustments. The Selectasine Press will coat stock with air brush smoothness, lay color sheets for over-printing, and varnish finished work. It will also cut stock in restricted areas.

The principle of a rubber squeegee in combination with the fabric stencil eliminates make-ready. If there are any mounds or hollows on the surface of the stock, the elastic pressure of a rubber blade forces the pliable stencil into uniform contact.

Adjustable Clutch Rod

An adjustable clutch rod for application to Linotypes and Intertypes is being made by the Linotype Parts Corporation, 203 Lafayette St., New York, New York. After the rod has been applied to the machine, the adjustable means will be found in the threaded outer section which screws into the body of the rod proper. The adjustment is obtained by taking out the screw from the driving shaft link collar fulcrum screw to disengage the clutch rod. The clutch rod itself may then be shortened or lengthened by turning the short section shown at the right of the diagram to cause proper regulation of the 15/32 in. space between the machine bearing and the shaft collar. The adjustable feature of the rod permits quick adjustment of the clutch. A screwdriver slot at the outer end of the adjustable section facilitates manipulation in order to place the clutch in proper operating condition.



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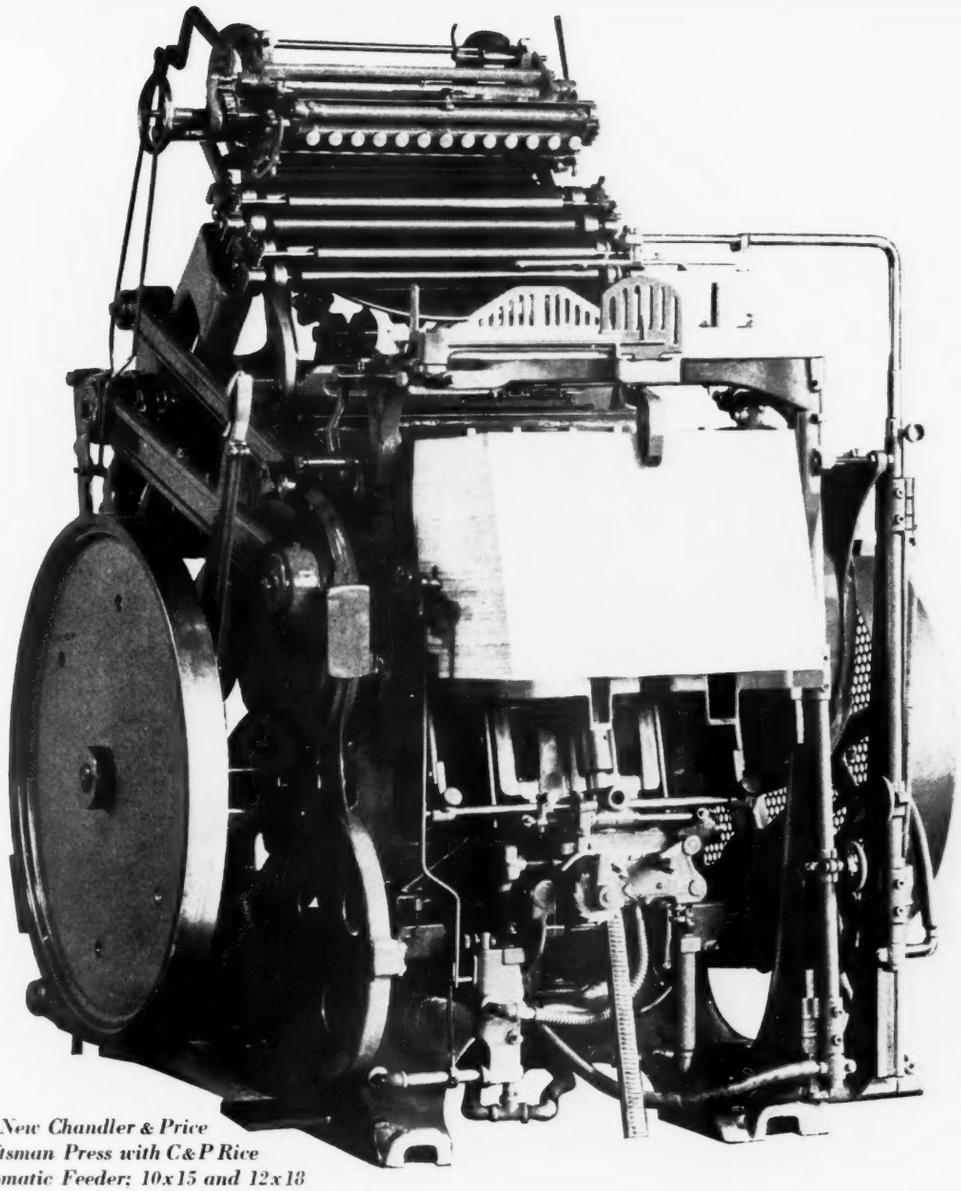


The New Chandler & Price Craftsman Press with C&P Rice Automatic Feeder; 10x15 and 12x18

TODAY, in printing, COSTS are more important than ever before. Together with good workmanship and efficient service, low actual production costs provide the only sound basis upon which sales volume *and real profits* can be built.

Hundreds of printers have found that installation of the New Craftsman Press with C&P Rice Automatic Feeder is one certain way to reduce costs and insure worthwhile profits on job press operation. For here is one automatic unit that is definitely designed to give the printer exactly what he needs today . . . rapid, low-cost output of job presswork of highest quality, with least time required for makeready, and for press and feeder adjustments.

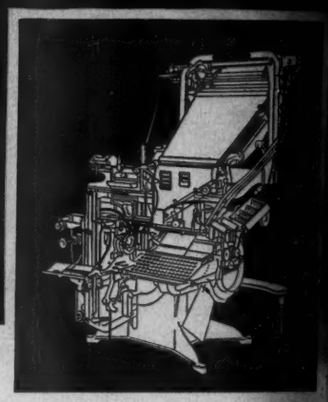
An adequate description of Handwheel Impression Control, and the many other time-saving features built into the New Craftsman Automatic Unit, requires more space than is available on this page. If you would like to know more about how this new press will help you cut your costs and increase your profits, write us, without obligation, for complete descriptive bulletin and specifications.

THE CHANDLER & PRICE COMPANY • CLEVELAND • OHIO

Printing Presses and Paper Cutters

Branch Offices and Display Rooms:

NEW YORK: Grand Central Palace, 480 Lexington Avenue • CHICAGO: Transportation Building, 608 South Dearborn Street



NEEDLESS STEPS...

and every step costs money

Needless steps in the composing room are costly. Needless steps from one machine to another—or needless shifting of magazines—to get different sizes of type. More needless steps to get corrections. Needless handling of copy, slugs and proofs. Needless copy cutting. • All this needless effort is banished by the Model F Intertype Mixer. Model F produces as much type in TWO sizes without shifting the magazines as any non-mixer Intertype can produce in ONE size. The Model F operator takes the copy as it comes—news matter, classified, headlines, etc.—setting two or more different sizes in the order called for by the copy or proofs. And he works at straight-matter speed, for the type changes are made INSTANTLY on Model F, by means of a finger-touch lever.

Text set in Intertype Korinna

HOW MODEL F SAVES MONEY

One hundred per cent more speed on mixed composition, as compared with non-mixer machines. • Speed on straight matter fully equal to the speed of non-mixer machines.

Large savings on all composition requiring frequent changes from one size or face to another.

Remarkable simplicity. Model F requires no special attention of operator or machinist.

All sizes up to full-width 18 point (without distortion of the wide characters) can be set from both main magazines.

With side magazine equipment, Model F will set all sizes from 5 to 36 point full-width and up to 60 point condensed.

Write for Model F Booklet

INTERTYPE

360 Furman St., Brooklyn, N.Y.

INTERTYPE MODEL F MIXER